STREAM MAINTENANCE PROGRAM

BEST MANAGEMENT PRACTICES
Modified by Permit Conditions

2005 Version

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(Please note that the individual BMPs are categorized into project types but are not necessarily specific to those types and may be used in more than one category of project)

Steelhead at a Work Site

If a steelhead is encountered at a work site, contact one of the District fishery staff. District fishery staff will respond appropriately and contact the regulatory agencies as necessary.

(408) 265-2607	Extension
David Salsbery	2713
Jae Abel	2655
Lisa Porcella	2741
Melissa Moore	2596
Jason Nishijima	2863

In the event of an oil spill or fuel leak, please contact the District's 24 hour HAZMAT coordinator at 1-888-510-5151. The coordinator will direct you as to the appropriate response and contact all regulatory agencies.

Santa Clara Valley Water District

Army Corps of Engineers
Permit # 22525S
Prepared by the Santa Clara Valley Water District
Ecological Services Unit

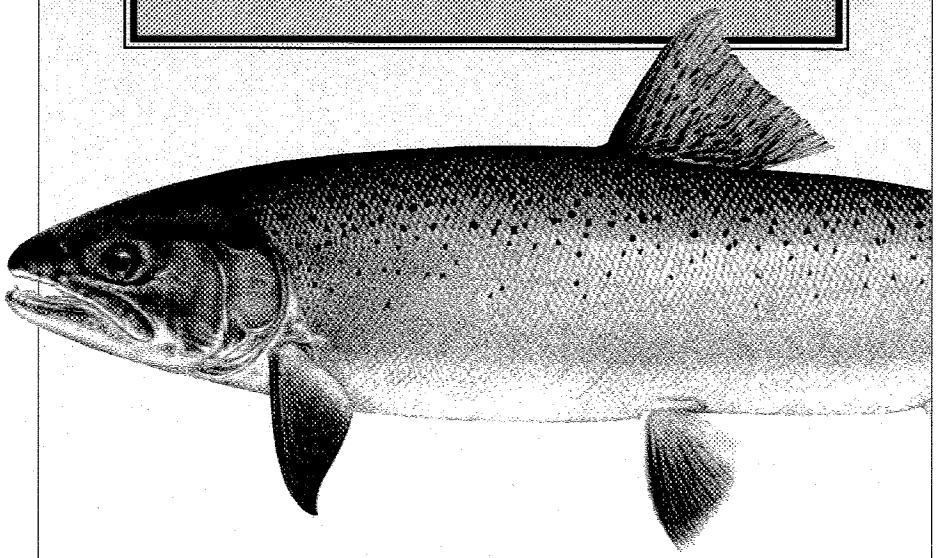
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SENSITIVE PLANTS, WILDLIFE, AND FISH AT YOUR WORKSITE

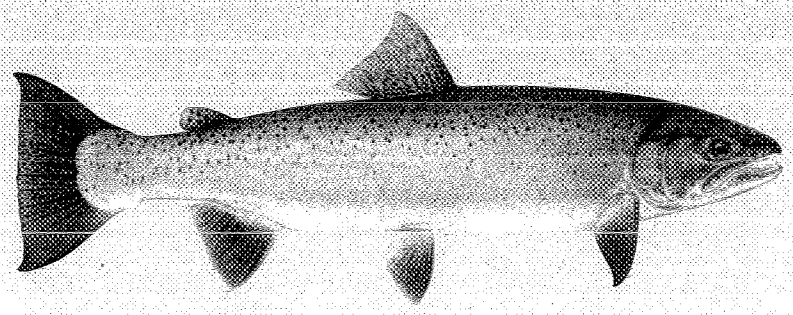
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Steelhead/Rainbow Trout

(Oncorhyncus mykiss)



Santa Clara Valley Water District



Santa Clara Valley Water District

Army Corps of Engineers
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Prepared by the Santa Clara
Valley Water District
Ecological Services Unit

presence of steelhead please contact the District biologists listed on the back cover.

- Guadalupe River
- Uvas (Carnadero) Creek
- Upper Penitencia Creek
- Guadalupe Creek
- Bodfish Creek
- Little Arthur Creek
- Pajaro River
- Coyote Creek
- Alamitos Creek
- Llagas Creek
- Stevens Creek
- Calero Creek
- San Francisquito Creek
- Los Gatos Creek

Best Management Practices and How They Work to Protect Steelhead

The Santa Clara Valley Water District has implemented a list of Best Management Practices (BMPs) that are oriented towards the protection of steelhead and steelhead habitat. A copy of the permits and supporting material, including a comprehensive BMP list, is available on the job site at all times. If you have questions regarding the implementation of one or more of the BMPs, please contact your supervisor for more information. Below is a list of BMPs that are applicable to steelhead streams.

- BMP 0.1 Instream Work Window
- BMP 1.11 Concrete Use Near Waterways
- BMP 1.3 Dewater/Bypass Water at Non-tidal Sites
- BMP 1.6 Use of Wheel and Track Mounted Vehicles in Stream Bottoms
- BMP 1.7 Pump/Generator Set Operations and Maintenance
- BMP 2.1 Minimize Vegetation Removal
- BMP 2.3 Minimize Hardscape in Bank Protection Design
- BMP 2.4 Success Criteria for Bank Protection Plantings
- BMP 3.1 Minimize Impact to Special-Status Plants and Animals Via Site Assessments and Avoidance Measures
- BMP 3.10 Conduct In-Channel Work During the Dry Season
- BMP 3.12 Maintain Low-flow Fish Passage
- BMP 3.16 Restore Spawning Gravels in Work Site Areas
- BMP 3.18 Herbicide Use in Aquatic Areas
- BMP 3.20 Minimize Adverse Effects of Herbicides on Non-target Species
- BMP 3.7 Salvage Native Aquatic Vertebrates from Dewatered Channels
- BMP 3.8 Minimize Effects of Bypass Structures on Steelhead
- BMP 3.9 Retain Woody Materials and Vegetation

die after spawning. Consequently, steelhead may return to spawn as many as four times in successive years. Mortality rates increase with the number of spawning events and the number of steelhead that spawn more than once is relatively low.

What to Expect at a Work Site

The window for work under the Stream Maintenance Program is conducted from June 15th to October 30th. During this time you may encounter fry which are usually less than 50mm in length. Fry are typically found in shallow stream edge habitats where water velocity is minimal. Juvenile steelhead rear in fresh water for 1 to 3 years so you may encounter juvenile fish of varying sizes. The juveniles are found in deeper, faster water usually with escape cover near by. Escape cover can consist of logs, rocks, rootwads, under cut banks or even debris. It is also possible that you may encounter a late out migrating smolt. Smolts will have a silvery appearance with no visible parr marks and a black edge to the caudal fin.

Steelhead Distribution in Santa Clara County

The creeks listed on page 5 and highlighted in the map (figure 2) are known steelhead locations. You may encounter steelhead in streams not on this list. If you have any questions regarding the

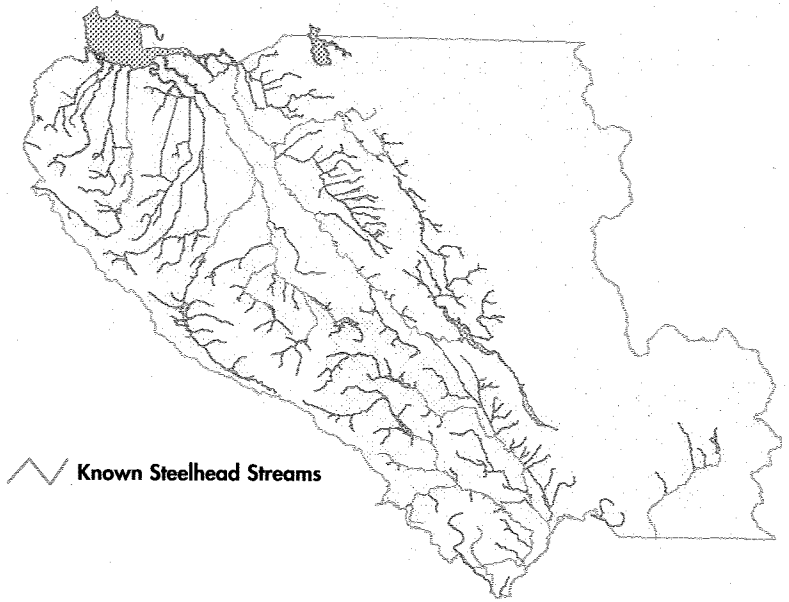


Figure 2. Known steelhead distribution in Santa Clara County.

Current Status of Steelhead in Santa Clara County

Steelhead, (*Oncorhynchus mykiss*), in Santa Clara county were listed as threatened in 1997 by the National Marine Fisheries Service under the Federal Endangered Species Act of 1973. Steelhead in Santa Clara County, are part of a broader geographic listing under two Evolutionarily Significant Units (ESU). One designation is the Central California Coast ESU, extending from the Russian River to Aptos Creek and includes all watersheds in Santa Clara County which drain to the San Francisco Bay (north Santa Clara County). The other designation is the South Central California Coast ESU extending from the Pajaro River drainage that empties into Monterey Bay (including all southern Santa Clara County watersheds) to, but not including, the Santa Maria River (Figure 1). These ESU designations include only naturally spawned populations of steelhead and their progeny in streams below impassable barriers such as dams and waterfalls.

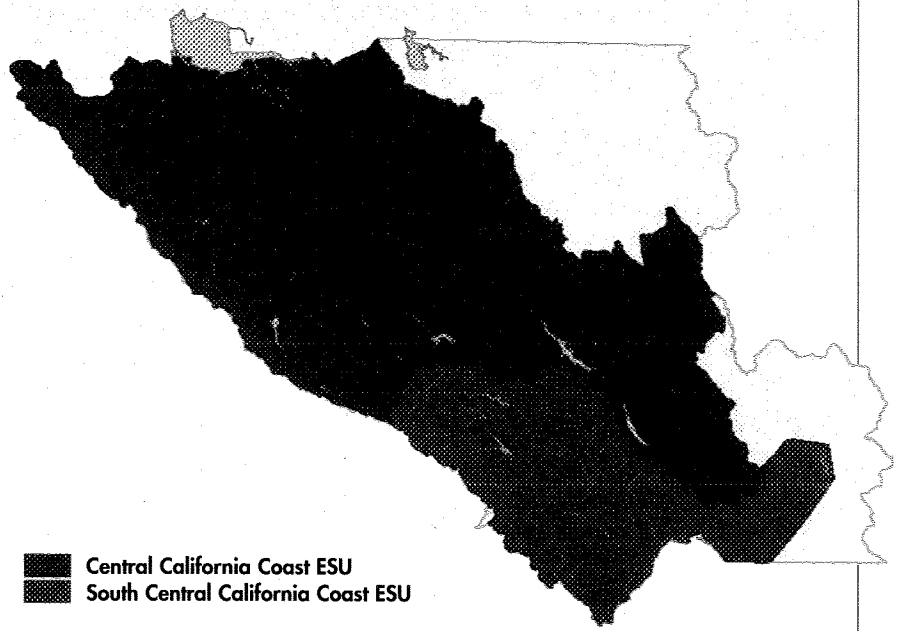


Figure 1. Steelhead ESU designations in Santa Clara County.

Steelhead or Rainbow Trout?

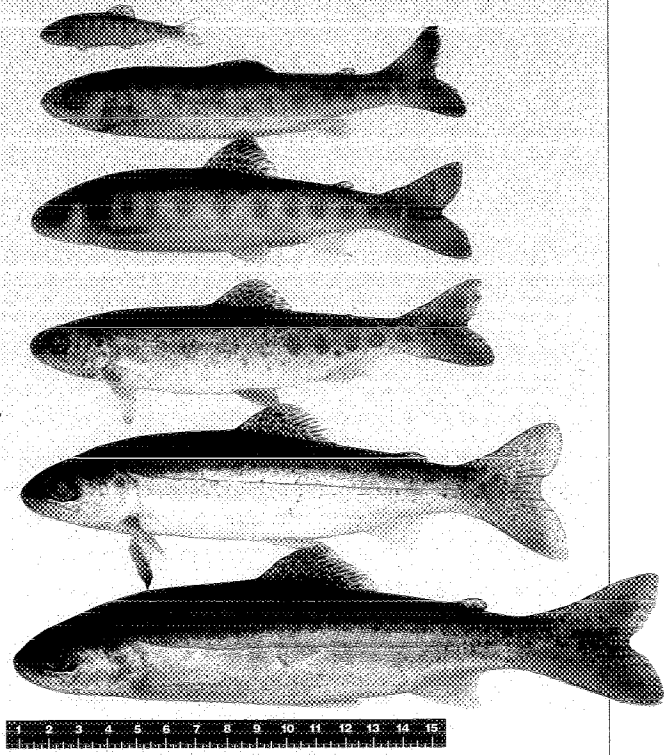


Steelhead adult

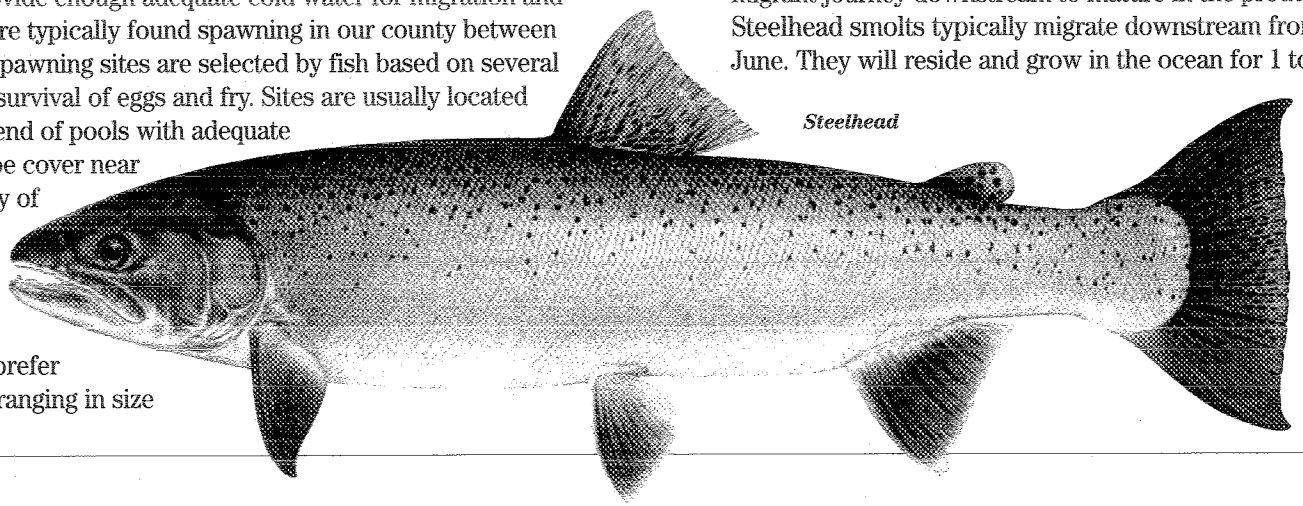
A steelhead trout is the same species as a rainbow trout, *Oncorhynchus mykiss*. A steelhead is an anadromous form of the resident rainbow trout because it migrates to the ocean as a juvenile and returns to fresh water as an adult to spawn. Adult trout can be recognized by the numerous black spots that are present on the back of the fish as well as on the dorsal, adipose and caudal fins. The back of the fish can vary in color from blueish/green to a shade of olive. The general body color is silver with a pink to reddish lateral band which appears along the side of the fish when it is in spawning condition. It is important to remember when identifying this species of fish that color can be highly variable and dependent on local environmental and reproductive conditions. In a stream it is difficult to tell a resident rainbow trout from a steelhead trout because, morphologically, they may look the same until it is time for the steelhead to migrate to the ocean. At this time, the steelhead undergoes physiological changes that allow the fish to adapt to higher saline conditions of the ocean environment. This process, called smoltification, is a change in physiological, morphological, biochemical, and behavioral characteristics which includes development of a silvery appearance for the out-migrating fish.

Life History

Steelhead enter the streams from the ocean in fall/winter when increased seasonal rains provide enough adequate cold water for migration and spawning. Steelhead are typically found spawning in our county between December and June. Spawning sites are selected by fish based on several criteria that allow for survival of eggs and fry. Sites are usually located in riffles or at the tail end of pools with adequate water depth and escape cover near by. The size and quality of gravels used by the fish is another important component of successful steelhead spawning. They prefer sediment free gravels ranging in size from approximately a quarter inch to four inches. The female fish builds a nest (redd) by fanning her tail through coarse gravel until a depression is made. Once construction of the nest is complete, the female accompanied by a male move above the nest and simultaneously release eggs and milt for fertilization. The eggs hatch in the gravels in approximately 3 to 4 weeks depending on the temperature of the water. Once the eggs hatch the alevin (hatchlings) feed on the yolk sac for 2 to 3 weeks before emerging from the gravels as fry. The fry move to slow, shallow water for several weeks after leaving the nest. As the fish begins to grow, it moves to faster, deeper water where it can feed on drifting insects such as mayflies and stoneflies. Juvenile steelhead typically spend between 1 to 3 years in fresh water habitats where there is clear, cool, well oxygenated water with a moderate to fast current. When steelhead smolt, they begin an arduous out migrant journey downstream to mature in the productive ocean waters. Steelhead smolts typically migrate downstream from late March through early June. They will reside and grow in the ocean for 1 to 3 years. Little is known about steelhead behavior in the ocean environment.



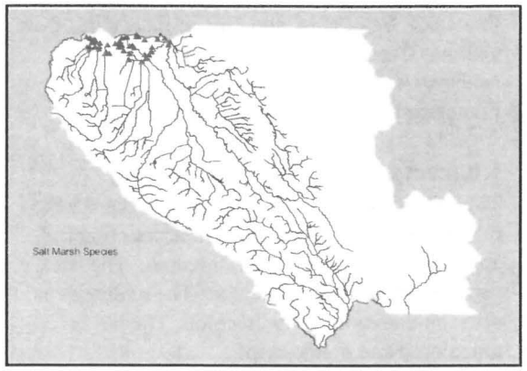
Fry to adult



Steelhead

However, it is believed that they stay relatively close to the west coast. Steelhead typically return to their stream of origin after ocean residence to spawn. Unlike salmon, these fish do not always

months, some individuals will move from pickleweed marsh to bordering grasslands. This shift is not considered a change in habitat use.



Distribution of marshland sensitive species in the county.

Procedures

The Ecological Services Unit has attempted to identify areas of the District where these marshland sensitive species may occur. You should assume you are working within the habitat of these species if you are working near tidal sloughs or marshes containing pickleweed, cordgrass, or bullrush.

The following are standard procedures you should follow when working in salt marsh habitat.

- Where access to work sites needs to be created it shall be restricted to the minimal amount necessary.
- Equipment storage and staging areas shall be located on upland sites, away from potential habitat.
- The construction access shall be minimized wherever feasible.
- Refueling of vehicles shall occur at least 100 feet from wetland habitats.
- All project related spills of hazardous materials within or adjacent to the construction zone shall be cleaned immediately.
- The work area shall be kept clean.
- Pets are not allowed in the work area.
- Only qualified personnel authorized by the U.S. Fish and Wildlife Service and/or the California Department of Fish and Game shall handle clapper rails, black rails, and salt marsh harvest mice.

What to Do

If you observe or suspect a sensitive species in your project area, contact your supervisor or the Ecological Services Unit at (408) 265-2600. When calling the Ecological Services Unit please direct your inquiries to the following specialist:

Fisheries:
David Salsbery - Extension 2713
Jae Abel - Extension 2655
Lisa Falco-Porcella - Extension 2741
Jason Nishijima - Extension 2863
Melissa Moore - Extension 2596

Plants:
Gale Rankin - Extension 2729
Janell Hillman - Extension 2663
Doug Titus - Extension 2083

Wildlife:
Doug Padley - Extension 2725
Navroop Jassal - Extension 2676
Nina Merrill - Extension 2640

Prepared By

Ecological Services Unit
Watershed Management Operations
Santa Clara Valley Water District

April 29, 2003

Sensitive Plants, Wildlife, and Fish at Your Worksite

California Clapper Rail
California Black Rail
Salt Marsh Harvest Mouse



Adult Clapper Rail. Photo by Peter LaTourrette.

Santa Clara Valley Water District

Endangered Species:
California Clapper Rail

The California clapper rail is listed as an endangered species by the U.S. Fish and Wildlife Service and the California Fish and Game Commission. The California clapper rail has special protection from "taking" under the federal and California Endangered Species Acts. Individual birds and the habitat on which they depend are protected.

Distribution
Within California, the California clapper rail is restricted to tidally influenced marshes in coastal Central and Northern California. They are known to breed along the bay margin in Santa Clara County. Highest concentrations are at the Palo Alto Baylands, but they can be found in any tidal slough channel with cordgrass or pickleweed vegetation. They have occasionally been found in brackish marshes with bullrush and cattail vegetation. Clapper rails are year round residents in the Bay Area. During fall and winter, individuals are occasionally sighted outside of slough channels. Vagrants have been found in nearby cities and the Farallon Islands.

Clapper Rail Characteristics
The California clapper rail is a large rail (14 inches total length). Rails are chicken-like birds with long legs, long toes, and long, slightly curved bill; the body is compressed from side to side. The California clapper rail's coloration is variable, ranging from grey-brown to cinnamon. The throat, breast, and upper abdomen are a buff color. The back appears darker because the back feathers have dark centers. The flanks are dark with white barring. It has white undertail feathers. Its bill is yellow-brown and cheeks are brownish. The legs are yellow to dark green-brown. In the field the Virginia Rail may be mistaken for the Clapper rail. The main difference between these two species is size.

Rail Habitat
California clapper rail are found almost exclusively within tidally-influenced salt marshes and tidal sloughs dominated by cordgrass and pickleweed. Shrubby areas adjacent to or within the marsh may be important for predator avoidance during high tides. Nesting also occurs within this habitat. A majority of their nests have been found within pickleweed, while some have also been found in Pacific cordgrass and saltgrass.

Threatened Species:
Black Rail

The California black rail is considered a species of concern by the U. S. Fish and Wildlife Service and is protected at the state level as a California threatened species. Not only are individual rails protected but also the habitats on which they depend.

Distribution
The California black rail is found primarily in the northern portion of the San Francisco Bay Estuary, in San Pablo Bay and Suisun Bay, with more than 80% of the population located there. There are smaller populations at Bodega Bay, Tomales Bay, Bolinas Lagoon, Morro Bay. Black rails are regularly observed in Santa Clara County and may breed in the county. The California black rail is not migratory and is found throughout it's range during breeding season. Within Santa Clara County, it occurs regularly during the winter at the Palo Alto Baylands. They are most frequently observed during extreme high tides.

Black Rail Characteristics
The black rail is the smallest of the North American Rails; adult length is 4-6 inches and adult wingspan is 9-11 inches. California black rail adults are pale to dark gray. The crown is darker black. The undertail feathers and flanks are streaked with white and dark gray. The underparts are uniformly colored and paler. The nape and upper back are chestnut. The lower back and uppertail feathers are dark grey with scattered white spots. The tail, flanks, and back sometimes have a chestnut wash. Eyes are red in adults and brownish- olive in juveniles. Legs are blackish gray for both and the bill is short and black. Juveniles are similar to adults but duller.



Adult Black Rail. Photo by Peter LaTourrette.

Black Rail Habitat
Black rail are found in salt marsh, shallow freshwater marshes, wet meadows and flooded grassy vegetation. The California black rail will tolerate a higher degree of flooding, provided there is surrounding upland vegetation to hide in during extreme high tides. They appear to select densely vegetated marshes characterized by high stem density and canopy cover, shallow water with upland vegetation nearby, greater coverage and height of alkali heath, and high insect and low amphipod abundance.

Endangered Species:
Salt Marsh Harvest Mouse

The salt marsh harvest mouse is listed as an endangered species by the U. S. Fish and Wildlife Service and the California Fish and Game Commission. The decline of the salt marsh harvest mouse is primarily due to long-term habitat loss. Individual harvest mice and the habitat on which they depend are protected.

Distribution
The salt-marsh harvest mouse inhabits salt marshes fringing San Francisco Bay and Suisun Bay. The salt marsh harvest mouse is divided into two subspecies. The northern subspecies (*R. r. halicoetes*) inhabits the marshes fringing San Francisco, San Pablo, and Suisun Bays north from Gallinas Creek. The southern subspecies (*R. r. raviventris*) inhabits both sides of the San Francisco Bay in the central and south region.

Characteristics
The salt-marsh harvest mouse is approximately 5-6.5 inches in length with the tail accounting for approximately half the overall length. The back surfaces are brownish in color. The underside is often cinnamon to white in color. The tail is unicolored and nondescript.



Salt Marsh Harvest Mouse in pickleweed habitat. Photo by Alan Walther.

Habitat
Salt marsh harvest mice are most abundant in dense pickleweed salt marshes. During high tides, salt marsh harvest mice will use tall vegetation to escape inundation. During the spring and summer

for nesting. Because they must dig their burrows, they require soft banks of sand or sandy loam. They have been observed in riparian, grassland, brackish marsh, salt pond and urban habitats adjacent to the bay in the northernmost portion of the county.

Procedures

The Ecological Services Unit has attempted to identify areas of the District where burrowing owls/bank swallows may occur. You should assume you are working within the habitat of western burrowing owls if you are working in dry, flat, open areas with little or no vegetation. The presence of ground squirrels may also be an indication of burrowing owl presence.

The following are standard procedures you should follow when working in burrowing owl habitat.

- Where access to work sites needs to be created it shall be restricted to the minimal amount necessary.
- Equipment storage and staging areas shall be located on upland sites, away from potential habitat.
- All project related spills of hazardous materials within or adjacent to the construction zone shall be cleaned immediately.
- The work area shall be kept clean.
- Pets are not allowed in the work area.
- Only qualified personnel authorized by the U.S. Fish and Wildlife Service and/or the California Department of Fish and Game shall handle western burrowing owls/bank swallows.
- If you are in doubt about whether any birds you are seeing on your site are burrowing owls, contact the District Wildlife Biologist immediately.

What to Do

If you observe or suspect a sensitive species in your project area, contact your supervisor or the Ecological Services Unit at (408) 265-2600. When calling the Ecological Services Unit please direct your inquiries to the following specialist:

Fisheries:
David Salsbery - Extension 2713
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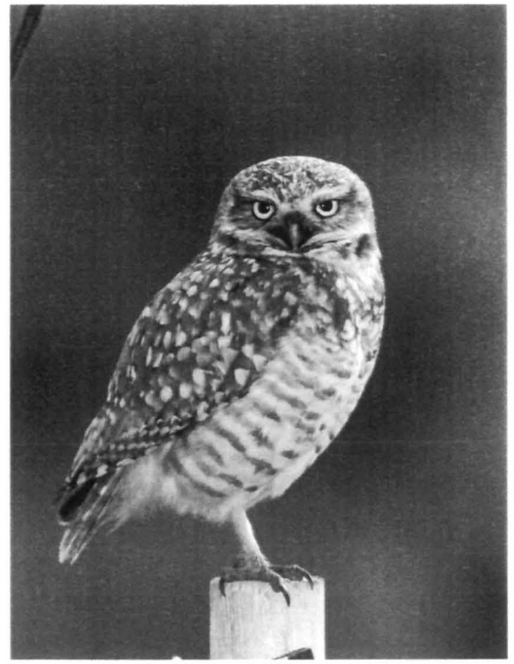
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Ecological Services Unit
Watershed Management Operations
Santa Clara Valley Water District

April 29, 2003

Sensitive Plants, Wildlife, and Fish at Your Worksite

Western Burrowing Owl & Bank Swallow



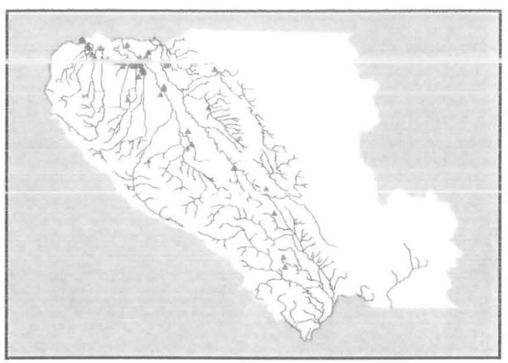
Burrowing Owl. ©1997 Peter LaTourrette.

Santa Clara Valley Water District

Sensitive Species:
Western Burrowing Owl

The western burrowing owl has federal protection under the Migratory Bird Treaty Act (MBTA) and is considered a species of special concern by the California Department of Fish and Game. MBTA prevents the "take" of adult birds, their nests, eggs, or young.

Distribution
Historically the burrowing owl was a common resident throughout much of Santa Clara County. However, the conversion of grassland to agriculture and urban development has severely fragmented the habitat of this species. Within the county, disjunct populations occur on dry, flat, open areas. They are also known to occur in grasslands of the surrounding foothills of the Santa Cruz and Diablo Ranges. In California, burrowing owls can be found at elevations ranging from sea level to 5300 ft. However, their distribution is steadily contracting due to the pressures of urban development.



Distribution of the burrowing owl in Santa Clara County.

Owl Characteristics
The western burrowing owl is a small ground dwelling owl, approximately 23 to 28 cm in total length. Overall it has tan or light brown coloration with a white chin stripe, white eyebrows, yellow eyes, cream-colored spots on the back, and a light brown barred belly. It also has a stubby tail, round head and lacks ear tufts. Juvenile birds lack barring on the belly and have a cream or buff colored belly instead. The western burrowing owl is easily distinguishable from other owls by its long stilt-like legs.



Burrowing Owl pair at burrow.
© 2000 Peter LaTourrette.

Owl Habitat
Burrowing owls prefer dry, open, shortgrass, treeless areas often associated with burrowing mammals. The owls will often take over a burrow of another animal. The burrow is used for nesting, retreat from predators, food storage, and shelter. Ground squirrels are commonly found in the same area as burrowing owls. The owls can excavate holes where burrowing mammals are absent but rarely do so.

Although undisturbed habitat is preferred, this species can and does occur within close range to human activity. In urbanized areas any open land such as vacant lots, cemeteries, golf courses, and airport runways are utilized. In Santa Clara County burrowing owls utilize a number of human-made structures, including creek levees, marsh and salt pond edges, culverts, drainage pipes, and cement pressure relief structures along pipelines. Other human-made structures they may use include cement, asphalt, and wood debris piles, or openings beneath cement or asphalt pavement.



Burrowing Owl Habitat. SCVWD photo.

Burrowing owls are year-round residents throughout most of their range, except at higher altitudes, and so maintain their burrows throughout the year. However, seasonal movements do take place. Once young become less dependent, the family group will move from burrow to burrow. Eventually, young will appropriate burrows further away, but in close proximity to the group. It has been suggested that burrowing owls may retreat to their burrows for long periods of time during the winter.

Threatened Species:
Bank Swallow

The bank swallow is protected at the state level as a threatened species and has federal protection under the MTBA.

Distribution
Historically, bank swallows could be found nesting in streamside banks and bluffs of rivers and streams throughout California. Because very few riparian systems remain in their natural state, bank swallows are now an extremely rare species in the state. In California, they breed primarily in the Central Valley. In Santa Clara County bank swallows are a rare spring and fall migrant. In the county suitable habitat may be found adjacent to or near streams, rivers, ponds or lakes. However, because bank swallows have such specific nesting requirements, their distribution is greatly restricted to areas where proper substrate exists. They winter primarily in South America.

Swallow Characteristics
In general, swallows have slender bodies with long, pointed wings. The bank swallow is the smallest of the swallow species. Adults have a dark brown upper surface which extends over the eye to the bill. The breast and belly are white except for a distinct brownish-grey breast band. This band often extends in a line down the center of the breast. The white throat extends around the rear border of the ear patch. The average size is about 13 cm (5in.) in length. Males and females are indistinguishable. Juvenile birds are similar with the exception of thin buffy wing bars.



Adult Bank Swallow.
Nova Scotia Natural History Museum.

Swallow Habitat
During spring and fall, bank swallows migrate in flocks over many open habitats. However, they are not completely dependent on riparian vegetation. During the breeding season, in the Central Valley, they will feed over riparian areas. During migration they will forage over wetlands, grassland, brushland, and cropland. They tend to select steep earthen banks, natural or human-made,

structural component is the shrub layer, as they spend a majority of their time foraging there. Most nests are placed in willow and mule fat. Nests may also be placed in rose, poison oak, elderberry, Fremont's cottonwood, California sycamore, and coast live oak. They winter in thornscub vegetation adjacent to watercourses or in riparian gallery forests in Mexico.

Procedures

The Ecological Services Unit has attempted to identify areas of the District where sensitive riparian birds may occur. You should assume you are working within the habitat of these birds if you are working along streams, ponds, or reservoirs with large, dense stands of willows and/or cottonwoods.

The following are standard procedures you should follow when working in riparian habitat.

- Where access to work sites needs to be created it shall be restricted to the minimal amount necessary.
- Equipment storage and staging areas shall be located on upland sites, away from potential habitats.
- The construction access shall be minimized wherever feasible.
- Refueling of vehicles shall occur at least 100 feet from wetland habitats.
- All project related spills of hazardous materials within or adjacent to the construction zone shall be cleaned immediately.
- The work area shall be kept clean.
- Pets are not allowed in the work area.
- Only qualified personnel authorized by the U.S. Fish and Wildlife Service and/or the California Department of Fish and Game shall handle native birds and their nests.

What to Do

If you observe or suspect a sensitive species in your project area, contact your supervisor or the Ecological Services Unit at (408) 265-2600. When calling the Ecological Services Unit please direct your inquiries to the following specialist:

Fisheries:
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Navroop Jassal - Extension 2676
Nina Merrill - Extension 2640

Prepared By

Ecological Services Unit
Watershed Management Operations
Santa Clara Valley Water District

April 29, 2003

Sensitive Plants, Wildlife, and Fish at Your Worksite

Riparian Birds



Willow Flycatcher. U.S. Geological Survey / Photo by Suzanne Langridge.

Santa Clara Valley Water District

Sensitive Species:
Willow Flycatcher

The willow flycatcher is federally protected under the Migratory Bird Treaty Act (MBTA) and is considered a federal sensitive species by the U.S. Fish and Wildlife Service (USFWS). USFWS has also given special status to two sub-species of the willow flycatcher. USFWS considers the little willow flycatcher a species of concern, while the southwestern willow flycatcher was federally listed as an endangered species on March 3, 1995. Not only are individual flycatchers protected but also the habitats on which they depend.

Distribution
Historically, the willow flycatcher bred in moist, brushy thickets, open second growth forests, and riparian woodlands throughout California. It was most common in the Central Valley, southern coastal region, and central California. Habitat destruction is the main reason for the decline in this species. Today, the willow flycatcher is a rare to uncommon summer resident and is not believed to breed in the Santa Clara County.

Flycatcher Characteristics
In general flycatchers are small songbirds with relatively large heads, bristly whiskers, and broad, flat bills. The willow flycatcher is about 15 cm in total length. The upperparts are brownish olive. It has a whitish throat, pale olive breast, and pale yellow belly. It has faint wingbars that do not stand out.

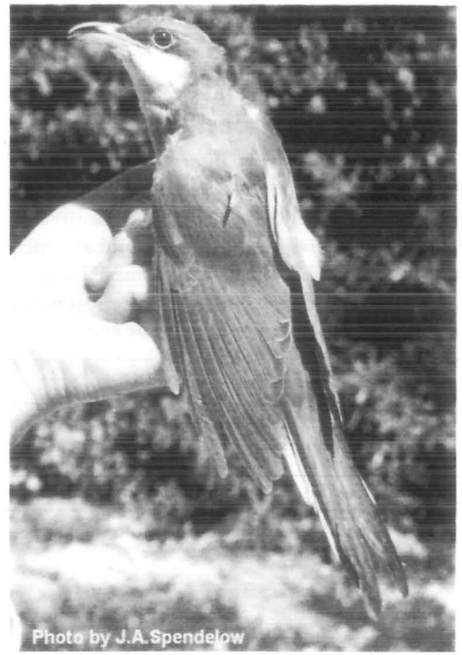
Flycatcher Habitat
Willow flycatchers occur primarily in riparian habitats. They are most numerous where extensive thickets of low, dense willows border meadows, ponds, or backwaters. During the breeding season they are restricted to moist, brushy willow thickets, whether along streams in broad valleys, in canyon bottoms, around mountain-side seepages, or at the margins of ponds and lakes. Dense willow thickets are required for nesting and roosting. Low exposed branches are used for singing posts and hunting perches.

Endangered Species:
Yellow-billed cuckoo

The western yellow-billed cuckoo is not currently a federally listed species but does have federal protection under the MBTA. At the state level, the yellow-billed cuckoo was listed as an endangered species on 26 March 1988. Not only are individual cuckoos protected but also the habitats on which they depend.

Distribution
Historically, the yellow-billed cuckoo was found in a variety of habitats throughout California from riparian woodland to valley orchard. However, much of the habitat once utilized by the yellow-billed cuckoo no longer exists or is extremely fragmented. Within Santa Clara County, the yellow-billed cuckoo is rare, and breeding does not occur here. In California, the largest breeding populations occur along the Sacramento and South Fork Kern Rivers. Post-breeding individuals may occur within the Santa Clara County during the summer months.

Characteristics
The yellow-billed cuckoo is a medium-sized song bird, 31 cm in total length. Size may be compared to that of a scrub jay. Adults have a down-curved bill, black above and yellow below. The throat and breast are white and the outer primary wings are reddish brown in color. It has a long tail with three prominent pairs of large white ovals on its dark underside. Immature cuckoos have a much paler tail pattern and the bill has little or no yellow.



Adult Yellow-billed Cuckoo.
Photo by Jeff Spendelow.

Cuckoo Habitat
Yellow-billed cuckoos have highly selective habitat requirements. They require dense woodlands, thickets, orchards, or streamside groves which border slow moving watercourses, backwaters or seeps. In some areas they will utilize adjacent orchards for foraging. During the breeding season in the summer months, they are extremely dependent on humid streamside woodlands composed of cottonwood-willow groves. They nest almost exclusively in willows but may utilize cottonwoods as well. Both old and young trees with dense foliage are utilized. Because this species is so secretive, it also requires dense understory vegetation.

Endangered Species:
Least Bell's Vireo

The least Bell's vireo is listed as an endangered species by the U.S. Fish and Wildlife Service and the California Fish and Game Commission. Individual birds and the habitats on which they depend are protected.

Distribution
Historically, the least Bell's vireo was found in riparian habitats throughout California and Baja California. The least Bell's vireo was listed because of declining population size and decreasing geographic range caused by destruction of habitat and by nest parasitism. The least Bell's vireo currently breeds in several counties of southern California. The majority are found in San Diego County. Young produced by these birds appear to be re-colonizing more northern counties. In 1997 one pair was observed nesting in willow dominated riparian habitat in the southern portion of Santa Clara County. However, they have not been observed here or in nearby creeks in subsequent years. Least Bell's vireos winter in Baja California.

Characteristics
The least Bell's vireo is the smallest subspecies of the Bell's vireo. Vireos are small songbirds with short, sturdy, slightly hooked bills, chunky bodies and tend to be less active foragers than similar appearing warblers. The adult least Bell's vireo is grey-green on its head, cheeks, nape, back, wings, and tail. Its throat and breast are grey, intergrading with white-yellow color on its breast and belly. It has a white eye ring. It has two wing bars, the lower one more distinct. Juveniles are similar with whitish cheeks and forehead, green in the wings and tail, less yellow on the breast and belly and more distinct wing bars.

Vireo Habitat
The least Bell's vireo prefers riparian woodland vegetation with broad canopy and shrub layers and some associated upland habitats. The most critical

down the center of the back. Bullfrogs are found throughout Santa Clara County. Individuals range in length from 2 to 8 inches. Bullfrogs typically have a light green or cream color around their mouths and large tympanums. They lack the rough, granular skin.

Frog Habitat

Foothill yellow-legged frogs have been found in both stream and terrestrial habitats throughout their historic range. They will utilize both perennial and intermittent streams, however, a permanent watercourse must be immediately upstream, downstream, or in the nearby vicinity. Foothill yellow-legged frogs generally utilize small to moderate-sized, open, low-gradient watercourses with at least some cobble-sized substrate and a good percentage of the stream area in riffles. They have also been found in stream situations lacking cobble or larger-sized substrate, but it is unknown if they utilize these areas regularly. Foothill yellow-legged frogs are absent from habitats where introduced aquatic predators such as green sunfish and bullfrogs are present.

Breeding normally occurs between mid-April to mid-May, following the period of high flows that result from rainwater and snowmelt or other hydrologic factors. Females deposit eggs on the downstream side of cobbles and boulders where a gentle flow of water exists. After reproduction adults will remain in the general areas to feed and bask on exposed rocks and gravel bars in the margins of pools along streams. They remain active throughout the year except during the coldest portions of the winter months.

Procedures

The Ecological Services Unit has attempted to identify areas of the District where red-legged frogs may or may not occur. You should assume you are working within the habitat of red-legged frogs if you are south of El Camino Real and Highway 85 in the West, North-central, and Central Zones; west of Santa Teresa or east of Foothill Avenue in the South Zone; and south of Capitol Expressway and Aborn Road or east of White Road and Piedmont Road in the East Zone.

The following are standard procedures you should follow when working in frog habitat.

- All persons working in frog habitat shall be trained in the identification of red-legged frogs.
- Where access to work sites needs to be created it shall be restricted to the minimal amount necessary.
- Equipment storage and staging areas shall be located on upland sites.
- Fill material shall not be side-cast into the stream or active channel.
- Brush shall not be stockpiled in the stream or on the bank.
- All vehicles operated within active streams shall be maintained daily to avoid leaks.
- Diversion of stream flow should be conducted using sandbags or another method requiring minimal instream impacts.
- The construction access in stream and riparian habitats shall be minimized wherever feasible.
- Hazardous materials shall be stored at least 100 feet from the stream.
- Refueling of vehicles shall occur at least 100 feet from stream habitats.
- All project related spills of hazardous materials within or adjacent to the construction zone shall be cleaned immediately.
- The work area shall be kept clean.
- Pets are not allowed in the work area.
- Only qualified personnel authorized by the U.S. Fish and Wildlife Service shall handle California red-legged frogs.

What to Do

If you observe or suspect a sensitive species in your project area, contact your supervisor or the Ecological Services Unit at (408) 265-2600. When calling the Ecological Services Unit please direct your inquiries to the following specialist:

Fisheries:
David Salsbery - Extension 2713
Jae Abel - Extension 2655
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Wildlife:
Doug Padley - Extension 2725
Navroop Jassal - Extension 2676
Nina Merrill - Extension 2640

Prepared By

Ecological Services Unit
Watershed Management Operations
Santa Clara Valley Water District

April 29, 2003

Sensitive Plants, Wildlife, and Fish at Your Worksite

California Red-legged Frog and Foothill Yellow-legged Frog



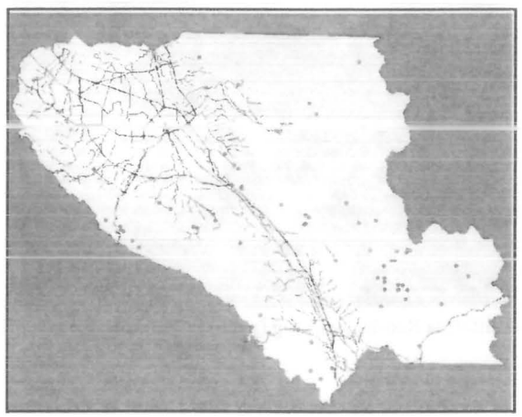
California Red-legged Frog (photo by Steve Bobzien)

Santa Clara Valley Water District

Threatened Species:
California Red-legged Frog

The California red-legged frog is listed by the U.S. Fish and Wildlife Service as a Threatened Species. This listing gives the frog special protection from "taking" by the federal Endangered Species Act. Not only are individual frogs protected but also the habitats on which they depend.

Distribution
Historically the California red-legged frog was found throughout Santa Clara County in perennial streams, ponds and other areas where water collects for any length of time. With the colonization of Santa Clara County and the subsequent urbanization, the range of the frog has contracted to the foothills and mountains that surround Santa Clara Valley. Occasionally a frog may move or be washed down into the valley. Regardless of how a frog moves onto a site, it is protected by the Endangered Species Act.



Distribution of California Red-legged Frogs in Santa Clara County.

Characteristics (See front)
The California red-legged frog is a medium sized frog (2 to 5 inches) with a highly variable color pattern. The overall length of the frog can range from 1 to 5 inches, with an overall color from rust red, to muted maroon, to dull olive. Not all frogs with red legs are red-legged frogs and not all red-legged frogs have red legs. Three of the characteristics most often used to identify the species are the dorsolateral fold, small size of tympanum (eardrum), and color. The dorsolateral fold is a line which begins at the eye and extends back along the body.
Other species which may be found in Santa Clara County and may be confused with the red-legged frog include western toad, foothill yellow-legged frog, and bullfrog.

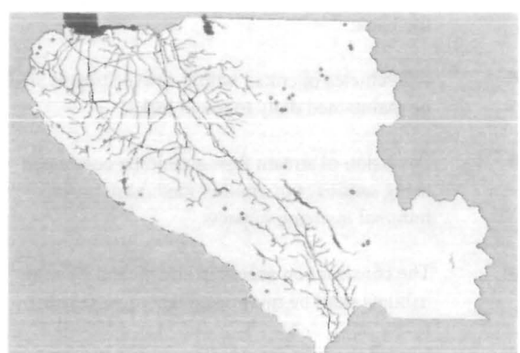
The western toad is found throughout the region. The toad may range in size from less than 1 inch to 6 or 7 inches in length. The skin tends to be rough with warts and a white line is located down the center of the back. Foothill yellow-legged frogs are similar in size to the red-legged frogs, however, they lack the dorsal-lateral folds and are found in aquatic habitats associated with riffles. The bullfrog is found throughout Santa Clara County. Individuals range in length from 2 inches to 8 inches in length. Bullfrogs lack the dorsal-lateral folds and typically have a light green or cream color around their mouths and large tympanums.

Frog Habitat
The habitat of the red-legged frog is highly variable. This species can be found in almost any location where there is standing water. Frogs have been found in streams, rivers, lakes, concrete lined flood control channels, ponds, and among debris that holds water. Typically, the red-legged frog is found in ponded water or slow moving streams with deep pools, emergent vegetation and vegetated banks. Vegetation along the banks can consist of willows, various trees, or brambles.

Sensitive Species:
Foothill Yellow-legged Frog

The foothill yellow-legged frog is currently known as a species of special concern by the California Department of Fish and Game (CDFG) and is classified as "protected" by the Department. Although this frog does not have official status as a candidate species for potential listing under the federal endangered species act, it nonetheless has disappeared from approximately 45 percent of its native range in California.

Distribution
Historically, foothill yellow-legged frogs were probably present in virtually all of the larger perennial streams in Santa Clara County with exceptions of the lower portions of Coyote Creek and the Guadalupe River. However, records show that the foothill yellow-legged frog has disappeared from the farmed and urbanized lowland areas of the county, as well as many of the perennial streams below major reservoirs. Remaining riparian habitat within the county are largely channelized and often contain a wide variety of predatory fishes and bullfrogs. Despite the major declines throughout the county, this frog is still quite abundant within the foothill and mountain ranges of the eastern part of the county. Although foothill yellow-legged frogs are rare in the lowland portions of the county, they may occasionally move or be washed down into the valley. Regardless of how a frog moves onto a site, it is classified as protected by CDFG.

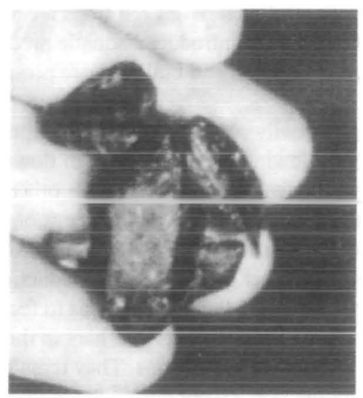


Distribution of Foothill yellow-legged frogs in Santa Clara County

Characteristics
The adult foothill yellow-legged frog is a moderate-sized frog, 1.3 to 3.2 inches from tip of the snout to the rear of the vent. The back is highly variable, but usually dark to light grey, brown, green, or yellow, often with considerable amounts of brick or reddish pigment, and rough, granular skin. A pale triangle is usually present between the eyelids and the snout. A yellow or yellow-orange pigment is usually restricted to the belly and the undersurfaces of the thighs, legs and feet. Dorsolateral folds are indistinct.

Juvenile frogs are 0.8 to 1.3 inches in total length. Newly hatched tadpoles are generally blackish in color, gradually changing to an olive background color with darker marbling and spots after a week or two of growth.

Other species which may be found in Santa Clara County and may be confused with the foothill yellow-legged frog include: western toad, red-legged frog, and bullfrog.



Juvenile foothill yellow-legged frog
(photo by Doug Padley)

Red-legged frogs range in size from 1 to 5 inches, with an overall color from rust red, muted maroon, to dull olive. Some, but not all frogs have red legs, however, the most distinguishing characteristics are the distinct dorsolateral folds. The western toad is found throughout the region. The toad may range in size from less than 1 inch to 6 or 7 inches in total length. The skin is also rough but with a more warty appearance and a white line extends

Other species of turtles found in Santa Clara County may be confused with the western pond turtle. Western painted turtle and red-eared slider are also found in the county and on first glance may often be mistaken for western pond turtles. However, upon closer inspection the differences may be identified. The western painted turtle has yellow lines on the head and limbs and the rear of the carapace is smooth-edged. The red-eared slider has a distinct broad reddish, or sometimes yellow stripe behind the eye. The rear edge of the carapace in this species is sawtoothed and has vertical streaking on the costal (outer) shields.

Turtle Habitat

The habitat of the western pond turtle within the county is found throughout the valley and upper elevations of the surrounding foothills. This includes the Santa Cruz mountains and the Diablo Range.

A highly aquatic species, the western pond turtle occurs in a variety of marshes, streams, rivers, ponds, and lakes. They favor habitats with abundant basking sites and are most numerous in the largest and deepest pools along streams.

Between late April and early August, gravid females emigrate from their aquatic habitats to upland areas to deposit their eggs where well drained soils are present. Hatchling turtles are believed to overwinter in the nest and move to aquatic sites the following spring. They spend most of their time feeding in shallow water with relatively dense vegetation composed of submergent vegetation or algal mats. Adults and juveniles prefer lotic aquatic habitats with basking sites such as rocks and logs. They also prefer sites with good cover, such as piles of boulders, undercut banks, and root wads.

In pond environments they remain until such ponds dry up, or at higher elevations when dispersal to terrestrial hibernation sites begins. In stream environments some turtles will leave during the summer months when water levels are low or temperatures are elevated. However, almost all turtles leave streams during winter when large flood events are common. Most turtles will leave in October or November and move from 15 to 480 m to upland habitats to overwinter. They will generally overwinter in terrestrial habitats such as leaf litter or under root masses of trees.

Due to warm water temperature greater than 15°C, pond turtles are probably active year round in Santa Clara County, except at higher elevations. The largest turtle populations have been observed in slow-water habitats, with abundant basking sites and cover. In Santa Clara County pond turtles may also utilize irrigation canals, golf course ponds, sewage treatment ponds, percolation ponds, reservoirs, gravel pits, and intermittent irrigation ponds.

Procedures

The Ecological Services Unit has attempted to identify areas of the District where tiger salamanders and western pond turtles may occur. You should assume you are working within the habitat of tiger salamanders or pond turtles if you are working in slow-moving streams, temporary or permanent pond habitats, with submerged vegetation, appropriate basking sites, and good cover.

The following are standard procedures you should follow when working in salamander/turtle habitat.

- Where access to work sites needs to be created it shall be restricted to the minimal amount necessary.
- Equipment storage and staging areas shall be located on upland sites.
- The construction access shall be minimized wherever feasible.
- Refueling of vehicles shall occur at least 100 feet from wetland habitats.
- All project related spills of hazardous materials within or adjacent to the construction zone shall be cleaned immediately.
- The work area shall be kept clean
- Pets are not allowed in the work area.
- Project limits shall be flagged prior to construction.
- The project biologist shall periodically visit the site during construction to ensure that all practicable measures are being employed to avoid incidental disturbance of habitats and individual tiger salamanders/pond turtles.
- Only qualified personnel authorized by the U.S. Fish and Wildlife Service and/or the California Department of Fish and Game shall handle California tiger salamanders/western pond turtles.

What to Do

If you observe or suspect a sensitive species in your project area, contact your supervisor or the Ecological Services Unit at (408) 265-2600. When calling the Ecological Services Unit please direct your inquiries to the following specialist:

Fisheries:
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Nina Merrill - Extension 2640

Prepared By

Ecological Services Unit
Watershed Management Operations
Santa Clara Valley Water District

May 23, 2005

Sensitive Plants, Wildlife, and Fish at Your Worksite

California Tiger Salamander & Western Pond Turtle



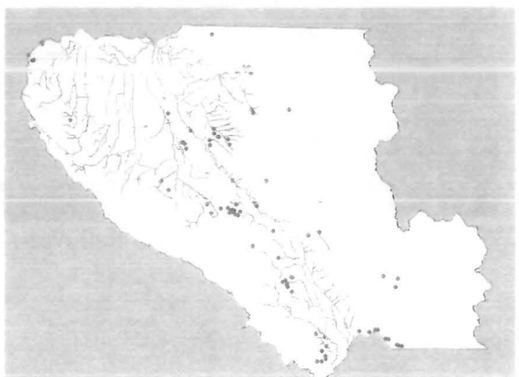
Adult western pond turtle (photo by Mark R. Jennings)

Santa Clara Valley Water District

Threatened Species:
California Tiger Salamander

The California tiger salamander is listed by the U.S. Fish and Wildlife Service as a threatened species as well as being listed as a California species of special concern. Individual salamanders and the habitats on which they depend have been given special protection by the federal Endangered Species Act. The California tiger salamander is also protected by state law throughout its range.

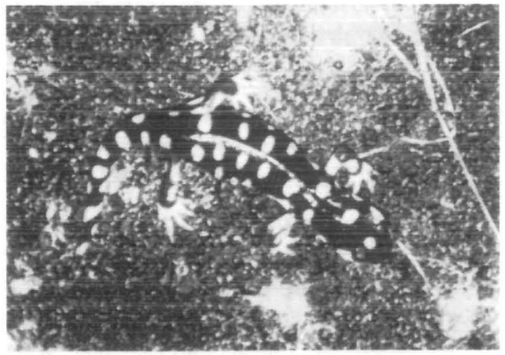
Distribution
Historically the California tiger salamander was found throughout much of Santa Clara County in ponds and other areas where water collects for any length of time. Adjacent habitats include grasslands or scrub lands. With the colonization of Santa Clara County and the subsequent urbanization, the range of the tiger salamander has contracted to the foothills and mountains that surround Santa Clara Valley. A few sites on the valley floor still support the California tiger salamander but these sites are rapidly disappearing.



Distribution of the California Tiger Salamander in Santa Clara County.

Salamander Characteristics
The California tiger salamander is a large sized salamander (3 to 5 inches snout-vent length) with several white or pale yellow spots or bars on a jet-black field. The underside of the tiger salamander is variably light colored. The eyes are small and have black irises.

Other species of salamanders may be found in Santa Clara County and may be confused with the California tiger salamander. Rough skinned newt, California newt, ensatina, California slender salamanders, arboreal salamander, and Pacific



California tiger salamander (photo by J. Didonato)

giant salamander, are also found in Santa Clara County and on first glance may be mistaken for California tiger salamanders. Each of these salamanders is distinct in its own way. Only the arboreal salamander which may be black and white and the Pacific giant salamander which is dark brown and cream colored may be confused after initial investigation.

The eastern tiger salamander has been introduced into several waterways, ponds, and lakes in Santa Clara County. This species is much more likely to be found in reservoirs and creeks where fish are present. It is almost impossible to distinguish the two species based on external characteristics. The California tiger salamander at one time was considered a subspecies of the eastern species.

Salamander Habitat
The habitat of the California tiger salamander is relatively narrowly defined. The salamander is confined to the valleys and lower elevation foothills in the county. This includes the Santa Cruz Mountains, the Diablo Range, and hills and ridges projecting into the valley.

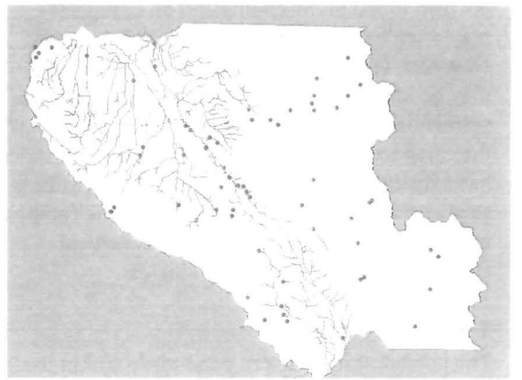
The California tiger salamanders use temporary pools and ponds for breeding. Water must be present for a sufficient length of time for larvae to develop. Ten weeks or more are necessary for the larvae to mature and undergo metamorphosis. If pools persist throughout the summer, tiger salamander larvae will not metamorphose until they are as large as possible. Following metamorphosis the salamanders may spend a few days near the drying pond before migrating to summer refuge sites. The salamanders may travel up to a mile to find summer refuges. Rodent burrows and other types of holes in the ground are used by tiger salamanders as summer refuges. These may be found in grasslands, or shrub lands. Basements, pipes and other man made structures have been used by the species.

In the late winter or early spring the salamanders will leave their burrows and migrate back to the ponds for breeding. These migrations occur during or immediately following rain storms.

Sensitive Species:
Western Pond Turtle

The adult western pond turtle is considered a species of concern by the U.S. Fish and Wildlife Service and a California species of special concern. For purposes of environmental review, the California Department of Fish and Game considers the species to be threatened. The western pond turtle is protected by state law throughout its range.

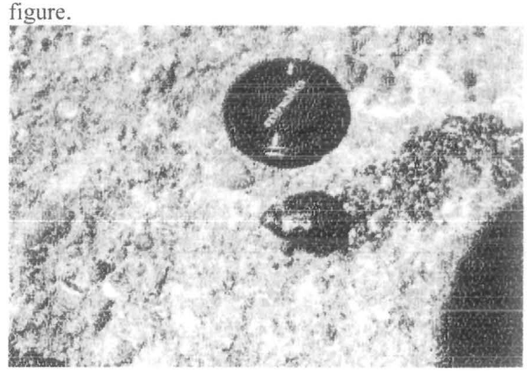
Distribution
Historically the western pond turtle was common throughout Santa Clara County in a variety of permanent and intermittent waters. However, exploitation and habitat loss associated with urbanization have reduced western pond turtle distribution to scattered locations in the remaining freshwater aquatic habitats. They have since disappeared from most of the brackish marshlands they once occupied, but can still be found in aquatic environments in the foothills and mountain ranges throughout the county. They are occasionally observed in the channelized portions of the densest urbanized areas of the county.



Distribution of the western pond turtle in Santa Clara County.

Pond Turtle Characteristics (See front)
The western pond turtle is a moderate-sized freshwater turtle (carapace, 4.7-8.3 in). The carapace is usually a dark brown or a dull yellow olive color, usually with dark flecks or lines radiating out from the centers of the shields. The body is drab brown or khaki-colored, often lacking prominent markings on the carapace.

Hatchling and juvenile turtles have long tails and carapaces that are usually brown or olive above, with markings at edge of marginals. Shields have numerous small tubercles. The plastron (lower shell) is yellow in color with a large central black figure.



Juvenile western pond turtle (photo by Mark R. Jennings)

California Endangered Species Act (CESA)

The Legislature recognizes that certain species of fish, wildlife, and plants have been rendered extinct as a consequence of man's activities, untempered by adequate concern and conservation. Other species of fish, wildlife, and plants are in danger of, or threatened with, extinction because their habitats are threatened with destruction, adverse modification, or curtailment, or because of overexploitation, disease, predation, or other factors. These species of fish, wildlife, and plants are of ecological, educational, historical, recreational, esthetic, economic, and scientific value to the people of California. Conservation, protection, and enhancement of these species and their habitats is of statewide concern.

California Environmental Quality Act (CEQA)

California's broadest environmental law, the objectives of the Act are:

- To disclose to decision makers and the public the significant environmental effects of proposed activities.
- To identify ways to avoid or reduce environmental damage
- To prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures.
- To disclose to the public reasons for agency approvals of projects with significant environmental effects.
- To foster interagency coordination.
- To enhance public participation.

The Ecological Services Unit is responsible for identifying sensitive resources and providing information to District managers about these resources and to assist project proponents in developing processes and procedures to avoid, minimize, and compensate for impacts to sensitive species.

Taking

"Taking" of a threatened or endangered species is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is defined as an act which actually kills or injures wildlife. Such acts may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Penalties

Taking a threatened or endangered species can result in civil fines and penalties of up to $25,000 for each violation and criminal penalties of up to $50,000 and one year imprisonment. An action does not have to be intentional for a violation to occur. Finally, violation of a permit may result in the revocation of other federal permits associated with the project.

Sensitive Species in the District's Jurisdiction

Plants

Tiburon Paintbrush
Santa Clara Valley Dudleya
California Sea Blite
Mt.Hamilton Thistle
Clustered Lady's-slipper
Brandegee's Wooly-star
Smooth Lessingia
Salinas Valley Popcornflower
Most Beautiful Jewelflower
Pappose Spikeweed
Coyote ceanothus
Metcalf Canyon Jewelflower
Mt. Hamilton Harebell
Mt.Hamilton Coreopsis
Interior California Larkspur
Talus Fritillary
Mt. Diablo Phacelia
Rock Sanicle
Mt. Hamilton Jewelflower
Western Leatherwood

Insects

Bay Checkerspot Butterfly

Fish

Central California Steelhead
South Central California Steelhead

Amphibians

California Tiger Salamander
California Red-legged Frog
Foothill Yellow-legged Frog

Reptiles

Western Pond Turtle
California Horned Lizard
Silvery Legless Lizard
San Francisco Garter Snake

Birds

California Condor
White-tailed Kite
Ferruginous Hawk
Black Rail
California Clapper Rail
Western Snowy Plover
California Least Tern
Yellow-billed Cuckoo
Western Burrowing Owl
Willow Flycatcher
Least Bell's Vireo
Bank Swallow

Mammals

Salt Marsh Vagrant Shrew
Small-footed Myotis Bat
Long-eared Myotis Bat
Fringed Myotis Bat
Long-legged Myotis Bat
Townsend's Big-eared Bat
San Joaquin Kit Fox
Salt Marsh Harvest Mouse

If you encounter a sensitive species...

If you observe or suspect a sensitive species in your project area, contact your supervisor or the Ecological Services Unit at (408) 265-2600. When contacting the Ecological Services Unit please direct your inquiries to the following specialist:

Fisheries:
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Jae Abel - Extension 2655
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If calling outside of normal business hours please leave a voice mail message. If you are unable to reach the Ecological Services Unit and it is an emergency situation involving an endangered species, contact the California Department of Fish and Game Monterey Office at (408) 649-2870 or the U.S. Fish and Wildlife Service, Sacramento Field Office at (916) 979-2725.

April 29, 2003

Santa Clara Valley Water District

Santa Clara Valley Water District

Sensitive Species in Santa Clara County

Santa Clara County, extending south from the San Francisco Bay to the Pajaro River, and east from the Santa Cruz Mountains to the Diablo Range, is home to a diverse assemblage of plants, animals, and over 1.8 million people. This juxtaposition of people and biological resources has led to many changes in the range and abundance of several local species. Some of these species have declined in numbers and the continued existence of their populations in Santa Clara County is now a sensitive issue. This pamphlet describes the statutory and regulatory framework which is used to classify plants and animals as sensitive species.

What are sensitive species?

Species may be endangered, threatened, or sensitive for any one or more of the following factors:

- the present or threatened destruction, modification, or curtailment of its habitat or range;
- overutilization for commercial, recreational, scientific, or educational purposes;
- disease and/or predation;
- the inadequacy of existing regulatory mechanisms;
- or other natural or manmade factors hindering their continued existence.

Some of these species have been listed as rare, threatened, or endangered under the federal Endangered Species Act of 1973 or the California Endangered Species Act. In addition the California Department of Fish and Game maintains a watch list for plants and animals of special concern. Sensitive species may fall into one or more of the following categories:

Federally Endangered
Species which are in danger of extinction throughout all or a significant portion of their range.

Federally Threatened
Species which are likely to become endangered throughout all or a significant portion of their range within the foreseeable future.

Federal Candidates
Species currently being reviewed by the U.S. Fish and Wildlife Service for possible addition to the List of Endangered and Threatened Wildlife and Plants under the Endangered Species Act of 1973.

State Endangered
Native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all or a significant portion of its range due to one or more of the following causes: loss of habitat, change in habitat, overexploitation, predation, competition, or disease.

State Threatened
Native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which, although not presently threatened with extinction, are likely to become endangered species in the near future without the special protection and management efforts required by the California Endangered Species Act.

Plants and Animals of Special Concern
Species, subspecies, or varieties which fall into one or more of the following categories:

- Officially listed by the state of California or the federal government as Endangered, Threatened, or Rare.
- A candidate for state or federal listing as Endangered, Threatened, or Rare.
- Taxa which meet the criteria for listing, even if not currently included on any list.
- Listed by the Bureau of Land Management, U.S. Fish and Wildlife Service, or U.S. Forest Service as a Sensitive Species.
- Taxa listed in the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California.
- Taxa that are biologically rare, exceedingly restricted in distribution, or declining throughout their range but not currently threatened with extirpation.
- Populations in California that may be peripheral to the major portion of a taxon's range but are threatened with extirpation in California.
- Taxa closely associated with a habitat that is declining in California at an alarming rate.

What laws govern sensitive species?

Federal Laws

Within the federal government, no single agency is responsible for managing biological resources. Each land management agency has primary responsibility for managing resources within their jurisdiction. For example, the Forest Service, Bureau of Land Management, National Park Service, and the Department of Defense are all responsible for managing wildlife habitats within their jurisdiction. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service are the primary agencies responsible for overseeing the management of endangered species.

Endangered Species Act of 1973 (ESA) is one of several federal statutes governing the management of sensitive species. The purposes of the Endangered Species Act of 1973 are:

> To provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of such endangered and threatened species.

The Act goes on to state:

> It is further declared to be the policy of Congress that all federal departments and agencies shall seek to conserve endangered and threatened species and shall utilize their authorities in furtherance of the purposes of this Act. It is further declared to be the policy of Congress that federal agencies shall cooperate with State and local agencies to resolve water resource issues in concert with conservation of endangered species.

Provisions have been included in the Act to allow otherwise lawful activities to proceed in areas where there are threatened or endangered species.
These provisions must be rigidly adhered to order to avoid violating the Act.

Projects involving federal agencies, work through a consultation process between the agency proposing the project and the U.S. Fish and Wildlife Service. They are permitted by the Act provided they do not increase the risk of extinction. Projects not involving a federal agency can proceed by obtaining an "Incidental Take Statement." The consultation or incidental take statement will spell out the conditions under which the project can proceed and any measures needed to mitigate any impacts.

Migratory Bird Treaty Act
Protects virtually all bird species found in the United States. It is illegal to take, kill, or possess birds or their nests except when provided by permit from the U.S. Fish and Wildlife Service. This Act protects birds not only during migration but also on their nesting and wintering grounds. The Migratory Bird Treaty Act implements treaties between the United States, Mexico, Great Britain (on behalf of Canada), Japan, and the Soviet Union (Russia).

Fish and Wildlife Coordination Act
Recognizes the vital contribution of wildlife resources to the nation, and provides that wildlife conservation shall receive equal consideration and be coordinated with other features of water-resource development programs through effectual and harmonious planning, development, and maintenance.

National Environmental Policy Act (NEPA)
Requires federal agencies proposing projects to review the environmental consequences of the project, as well as to develop and fully review viable alternatives to the project in order to avoid or minimize adverse effects on the environment. This review process results in the development of Environmental Impact Statements.

State Laws

The California Department of Fish and Game is the state agency charged with managing wildlife resources in California. In addition to statutes passed by the state, legislature, or by popular vote, the California Fish and Game Commission has the authority to establish regulations for the management of plants and animals in California.

TC425 S383 S76 2005c.1

Contact Information

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Hazardous Materials Response

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General

SMP – GENERAL BMPs

0.1	In stream Work Window	In-stream sediment removal and bank protection work shall be from June 15 to October 30th or the first significant rainfall after October 15, whichever occurs first. (Significant rainfall is defined as 0.5 inch of rain in a 24-hour period). Once significant rainfall occurs, all diversion structures shall be removed and the project site winterized to prevent erosion. No new instream sediment removal and bank protection work shall start after October 15th of any year, and projects started before October 15, shall be at least 50% complete by October 15th to continue work until October 30th or first significant rainfall. Minor activities will be done in-channel at any time of year if the activity is necessary to provide immediate flood protection. These activities include removal of trash or debris that will impede flows, trash rack cleaning, and pier nose cleaning. These activities will be done in a manner that is sensitive to protection of aquatic resources. Removal of in-stream vegetation by hand can be undertaken between July 1 and March 1.
RWQCB CC C.6	Uvas/Llagas Watershed	District may propose hand removal of channel vegetation after October 30th which will be reviewed and denied or granted a variance by the Executive Officer.
1.17	Work Window for Maintenance of New Bank Protection Projects	The District may maintain or repair bank protection projects that are less than 2 years old that are damaged by winter flows. The District will notify the regulatory agencies 24 hours prior to beginning the work and the work will be reported as part of the post construction report January 15 of each year or if necessary, the subsequent year. Appropriate BMPs will be applied and the site will be evaluated for environmental impacts. Additional mitigation, if needed, will be provided.
0.2	Minor Work	No reporting or mitigation will be required for minor work activities which remove less than 0.01 acres of wetland and woody riparian vegetation. An equivalent area of mitigation will be provided for annual amounts greater than 0.2 acres of wetland and riparian vegetation removed by minor work activities. Individual minor work activities which affect more than 0.05 acres of wetland and woody riparian vegetation will require separate approval and mitigation. These limitations exclude those minor work activities which occur in the same area as major sediment removal and vegetation management areas included in the program as shown in Figure II-5 of the Final EIR.
RWQCB SF D22	Impact Limitations	No impact of > 0.05 acre of wetland and/or riparian habitat per job, 0.2 acre total per year, 2 acres for 10 year life of permit.
F&G 35	Mitigation	When the annual total area of wetland and/or riparian removal done under minor work activities is greater than 0.2 acre, the District shall provide an equivalent area of mitigation.
1.6	Use of Wheel and Track Mounted Vehicles in Stream Bottoms	District personnel shall use the appropriate equipment for the job that minimizes disturbance to the stream bottom. Appropriately-tired vehicles, either tracked or wheeled, shall be used depending on the situation:

		1. Tracked vehicles (bulldozers, loaders) may cause scarification. 2. Wheeled vehicles may cause compaction. 3. Heavy equipment shall not operate in the live stream (see also BMP 1.3).
2.1	Minimize Vegetation Removal	1. The District has developed detailed Maintenance Guidelines to address the ongoing need for maintenance of vegetation or sediment in modified streams and channels. The guidelines are engineering-based and outline the level of maintenance required to ensure adequate flood protection capacity is maintained in the streams and canals within the District's jurisdiction. 2. Decisions regarding the necessity of routine sediment removal and vegetation management activities (to restore channel flow capacities) shall be made following the thresholds established in the guidelines. This information shall be used to formulate in part an annual routine maintenance work plan.
F&G 28	Disturbed area within high water mark	Restore disturbed portion of any stream channel or lake margin within high water mark to as near original condition as possible.
RWQCB CC C.9	Stabilize soil	(page 12) During dry season, no soils shall remain exposed and unworked for more than seven days. During wet season, no soils shall remain exposed.
F&G 29	Cape ivy	Cape ivy (Senecio mikanoides) removed during a project shall be bagged and disposed of in a landfill.
3.1	Minimize Impacts to Special-status Plants and Animals Via Site Assessments and Avoidance Measures	To avoid and minimize impacts to special-status plant and wildlife species, the annual work program shall be reviewed by biological staff, and each site where special status species have been found, have been known to exist in the recent past, or are likely to occur because suitable habitat exists, be visited by a biologist or qualified personnel under the direction of a biologist. For animal species the site surveys shall be no more than 30 days prior to the start of construction, to determine presence of special-status species. For mobile species (e.g. red-legged frog, western pond turtle, least Bell's vireo, steelhead), which may occur on-site during the work period, surveys be conducted as close to the start of work as is practical (no more than 7 days prior to start of work). For plant species, the surveys be conducted during the appropriate time of the year to determine presence. Information regarding the presence of special-status species on a particular worksite shall be based on the District's GIS database and professional experience of qualified staff. 1. The District shall use its GIS database to identify potential special-status plant and animal habitats. All projects falling within sensitive habitats shall be discussed with biological staff to identify avoidance and minimization measures. 2. All populations detected during the surveys shall be assessed and mapped. This information shall be entered into the District's GIS system for future management purpose. 3. Avoidance of impacts to serpentine areas or other sensitive plant habitats may include storing removed sediment offsite, limiting the method of vegetation removal to manual methods, and limiting the operation of maintenance equipment to established roads whenever possible. 4. Vegetation management in sensitive plant areas shall use only hand control or backpack herbicide application by operators trained to

		identify and avoid the species to be protected. 5. If sensitive animals such as western pond turtles or California red-legged frogs are found, a qualified biologist will remove them to suitable habitat outside of the project limits. Moving animals will be consistent with applicable Fish and Wildlife Service and Fish and Game permits. 6. If maintenance activities are scheduled in the vicinity of extant populations, qualified biological personnel shall clearly identify the populations on site and stake or flag a buffer zone around the population in which activities are to be avoided. 7. The results of all sensitive species surveys shall be reported to the Fish and Wildlife Service, National Marine Fisheries Service and the California Department of Fish and Game in an annual report. All surveys will be reported to the California Natural Diversity Database. 8. The District shall develop and distribute informational pamphlets entitled "Sensitive Plants, Wildlife, and Fish at your Worksite." These pamphlets are designed to inform staff about sensitive species and environmental protocols and procedures. 9. If sensitive species are found on the site during pre-construction surveys, then the project biologist shall conduct additional monitoring of the work site during construction.
RWQCB SF Prov 26 & RWQCB CC C.13	Dead fish or fish exhibiting stress	Halt work activities if dead or dying fish or fish exhibiting stress are observed within 1,000 feet of work activity or discharge. A qualified biologist will investigate the cause and define an acceptable corrective action plan, if the cause is related to SMP activities. Immediately report incident and remedial plan to Board and F&G.
NMFS D1a – D1e	Steelhead surveys And relocation	(pg. 37) On the 14 creeks designated critical habitat for steel head (list at end of this document), Biologist to conduct survey prior to construction. Biologist to be on site to collect fish during installation of de-watering systems Fish capture and relocation must be completed before 11 am each day. May continue past 11 am if the weather is unusually cool due to fog or cloudy weather.
NMFS D1g.	Pump screens	(pg 38) On the 14 creeks designated critical habitat for steel head (list at end of this document), Pumps shall be screened to NMFS criteria <http://swr.nmfs.noaa.gov/habitat.htm>
3.2	Minimize Impacts to Nesting Birds Via Site Assessments and Avoidance Measures	District personnel shall conduct SMP work in a manner consistent with the protocols established by the most current version of the District's Nesting Migratory Bird Procedure: 1. Project areas shall be checked by a qualified biologist for nesting birds prior to starting work if the work has the potential to impact nesting birds. 2. If nesting Raptors are found, a 300-foot buffer shall be established around the nest and maintained until the young have fledged. If other nesting birds are found, implementation of a project may be delayed until after nesting is completed. Work may occur if an adequate buffer, as determined by a qualified biologist, can be established between the maintenance activity and nests.

F&G 4 – 13	Protection of Salt Marsh Harvest Mouse and California Clapper Rail	4. Biological monitors retained by the District and approved by F&G shall be present during activities within areas of Salt Marsh Harvest Mouse (SMHM) and California Clapper Rail (CCR) habitat. Biologist must have Federal Scientific Collection permit issued by FWLS. 5. Monitor can order immediate changes in these projects to avert risk of imminent injury to SMHM and/or CCR. F&G to be notified within 24 hours if work is halted for protection of SMHM or CCR. 6. A biological monitor shall be present on continuous basis during any earth moving activity including excavation, boring, drilling, or placement of fill or movement of equipment larger than a pickup truck. 7. Monitor to inspect underneath any vehicle that is parked for 30 minutes prior to moving it. 8. The District, shall conduct an orientation program for persons who work in SMHM and CCR habitat. See permit for specifics 9. If SMHM or CCR is detected on site, work will cease until it moves out of the work area. 10. If an individual SMHM or CCR is killed or injured, F&G and FWLS will be notified within 30 minutes of the discovery. 11. The dead or injured animal shall be turned over to F&G, FWLS or its agent. 12. A written report shall be submitted to F&G and FWLS within 3 business days of the incident. 13. All biological monitors shall be supplied with cellular phones.
3.3	Avoid serpentine habitat	The District shall identify serpentine areas and avoid disturbance to these areas to the extent possible. 1. The District shall use its GIS database to identify serpentine areas near work areas and avoid and minimize impacts to all stands of native vegetation that may provide suitable habitat for special-status plants and invertebrates to the greatest extent possible. 2. Avoidance measures may include storing removed sediment offsite, limiting the amount of vegetation to be sprayed and removed in serpentine areas, and limiting the operation of maintenance equipment to established roads whenever possible. 3. Facilities crossing serpentine soil grasslands, shrub lands and woodlands shall be surveyed by a qualified botanist and permanently marked in the field (and in the District GIS). Areas supporting sensitive species shall be permanently marked in the field and in the District GIS and shall include 100 ft. buffer zones ***around individual plants or populations.*** ~~No upland herbicides shall be used in these marked areas. Aquatic herbicides may be used after July 1. Upland vegetation control using hand labor may occur after June 15.~~ 4. ~~Facilities crossing serpentine soil shrub lands and woodlands shall be surveyed by a qualified botanist. Areas supporting sensitive species shall be permanently marked in the field (and in the District GIS) and shall include 100 ft. buffer zones.~~ No upland herbicides shall be used in these marked areas unless the application is done in a manner that will protect sensitive plant populations ***and the Bay Checkerspot butterfly and its host plants.*** This determination shall be made by a qualified botanist. Aquatic herbicide applications ***and upland vegetation control using hand labor*** in these areas shall conform to the same requirements. A qualified botanist shall determine what type of vegetation management methods are appropriate to a given area or

		what modifications may be made to work practices to protect sensitive resources. ~~Buffer zones around individual plants or populations shall be established.~~
3.19 NOT A FIELD BMP	Develop a Biodiversity Monitoring Program	The District commits to developing and implementing a biodiversity monitoring program in conjunction with the focus of the program shall be on special-status species and their habitats. Monitoring results shall be incorporated into future BMP and maintenance design through the "lessons learned" process of annual review (refer to SMP Figure 3-1) so as to more effectively conserve and restore stream habitats. 1. Monitoring protocols for sensitive species shall be approved by the Fish and Wildlife Service, National Marine Fisheries Service or California Department of Fish and Game as appropriate. 2. The results of all sensitive species monitoring shall be reported to the Fish and Wildlife Service, National Marine Fisheries Service and the California Department of Fish and Game in an annual report. All surveys will be reported to the California Natural Diversity Database. 3. Monitoring shall be conducted during the appropriate time of year for each species under investigation. 4. All populations detected during the monitoring shall be assessed and mapped. This information shall be entered annually into the District's GIS system for future management purposes. 5. Sensitive species monitoring shall cover the following species: Salt Marsh Harvest Mouse - population, habitat mapping and trend; Western Snowy Plover - population, distribution and trend; California Clapper Rail - distribution and trend; Least Bell's Vireo - monitor revegetation sites and identify new sites; California Red-Legged Frog - distribution, population and trend; California Tiger Salamander - distribution, abundance and trend; Steelhead - population, distribution and trend; Chinook Salmon - population, distribution and trend; Bay Checkerspot Butterfly - population, distribution and trend; Tiburon Paintbrush, Coyote Ceanothus, Santa Clara Dudleya, Metcalf Canyon Jewelflower and Mt. Hamilton Thistle - population, distribution and trend; Raptors - nest locations; Salt Marsh Yellowthroat - distribution; Alameda Song Sparrow - distribution; Burrowing Owl - distribution, abundance and trend. 6. The figure "Fisheries present in streams within jurisdiction of the Santa Clara Valley Water District" (Figure IVB-1) shall be updated every 5 years. 7. The District shall complete the development of the biodiversity monitoring program within 1 year of the permits being issued. 8. Surveys for listed species shall be conducted by individuals authorized by the Fish and Wildlife Service and/or California Department of Fish and Game as appropriate.
4.1 NOT A FIELD BMP	Notify Local Governments of Scheduled Work	Notify cities and the County of proposed work by submitting the Annual Work Plan to the Public Works Departments and the District's Zone Advisory Committee.
4.2	Minimize Disturbances to Surrounding Neighborhoods	The District shall implement maintenance practices that minimize disturbances to neighborhoods surrounding work sites. 1. In general, work shall be conducted during normal working hours. Extending weekday hours and working weekends may be necessary to complete some projects. 2. Internal combustion engines shall be equipped with adequate

		mufflers. 3. Excessive idling of vehicles will be prohibited. 4. Levee traffic shall be limited to a speed of 15 miles per hour. 5. Access roads shall be watered as needed to control dust. 6. Dry sediment shall be wetted down or covered as needed to control dust during transport.
4.4	Sanitary/Septic Waste Management	Temporary sanitary facilities shall be located on jobs that last multiple days. All temporary sanitary facilities shall be placed outside of the creek channel and flood plain.
4.5	Vehicle and Equipment Cleaning	District vehicles shall be washed only at the approved area in the corporation yard. No washing of vehicles shall occur at job sites.
4.6	Work Site Solid Waste Management	District employees and contractors shall clean the work site before leaving by removing all litter and construction related materials. The District's maintenance crews shall be responsible for all debris incurred as a result of construction and for cleaning up dumped material.
4.8	Implement Public Safety Measures	The District shall implement public safety measures during maintenance: 1. Construction signs shall be posted at job sites warning the public of construction work and to exercise caution. 2. When necessary, a person shall be provided for traffic control. 3. If needed, a lane shall be blocked off to allow for trucks to pull into and out of the access points. 4. Where work is proposed adjacent to a recreational trail, warning signs shall be posted several feet beyond the limits of work. 5. Fencing, either the orange safety type or chain link shall be installed above repair sites on bank stabilization projects.
4.9	Notify Park Departments of Trail Closures	As part of the Annual Work Plan, the District will notify the park departments of trails that could be subject to closure. The type of work, location and duration of each project that will affect trail closures will be identified.
6.1	Spill Prevention	The District shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels. 1. District field personnel shall be appropriately trained in spill prevention, hazardous material control, and clean-up of accidental spills. 2. No fueling, repair, cleaning, maintenance, or vehicle washing shall be performed in the creek channel or in areas at the top of the channel bank that may flow into the creek channel.
6.2	Spill Kit Location	Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations). 1. Prior to entering the work site, all field personnel shall know the location of spill kits on crew trucks and at other locations within District facilities. 2. All field personnel shall be advised of these locations and trained in their appropriate use.
6.3	Hazardous Materials Management	The District shall implement measures to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means when removing sediments from the streams. 1. Prior to entering the work site, all field personnel shall know how to

		respond when toxic materials are discovered. 2. The discharge of any hazardous or non-hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations shall be conducted in accordance with applicable State and federal regulations. 3. All handling and disposal of sediments shall be performed in accordance with the WDR issued by the RWQCB. The sediment shall ultimately be disposed at a permitted landfill. Any alternative use or disposal shall require RWQCB approval.
6.4	Vehicle and Equipment Fueling	No fueling shall be done in the stream channel or immediate flood plain, unless equipment stationed in these locations is not readily relocated i.e., pumps, generators. For stationary equipment that must be fueled on site, containment shall be provided in such a manner that any accidental spill of fuel shall not be able to enter the water or contaminate sediments that may come in contact with water. Any equipment that is readily moved out of the channel shall not be fueled in the channel or immediate flood plain. All fueling done at the job site shall provide containment to the degree that any spill shall be unable to enter the channel or damage stream vegetation.
6.5	Vehicle and Equipment Maintenance	No equipment servicing shall be done in the stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators). 1. Any equipment that can be readily moved out of the channel shall not be serviced in the channel or immediate flood plain. 2. All servicing of equipment done at the job site shall provide containment to the degree that any spill shall be unable to enter the channel or damage stream vegetation. 3. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location shall be done in the channel or flood plain. 4. If emergency repairs are required, containment shall be provided equivalent to that done for fueling or servicing.
6.6	Employee/ Contractor Training	All appropriate District staff and contractors shall receive annual training on Stream Maintenance Program BMPs.
F&G 16	Paperwork required on site	F&G 1601, Appendices A,B,C,D,E,G
RWQCB SF Prov. 27	Paperwork required on site	Regional Board Order, all relevant plans and BMPs
RWQCB SF Prov. 29	Permit Board or representative on site	The Board is permitted to enter the site, access to copy records that are kept under terms and conditions of Order, access to inspect any treatment equipment, monitoring equipment or monitoring method required by the Order, and access to sample any discharge covered by the Order.
RWQCB CC MRP, pg 5	BMP Inspection & Log – Uvas/Llagas Watershed	Structural BMPs will be inspected twice daily and maintained, repaired and/or replaced as appropriate to prevent sediment discharge and reduce erosion. Inspections shall be documented in a BMP inspection log kept on site
7.1	Discovery of Cultural Remains or Historic Artifacts	Work in areas where remains or artifacts are found will be restricted or stopped until proper protocols are met. 1. Work at the location of the find will halt immediately within 50 feet of the find. A "no work" zone shall be established utilizing appropriate

		flagging to delineate the boundary of this zone, which shall measure at least 50 feet in all directions from the find. 2. The District shall retain the services of a Consulting Archaeologist, who shall visit the discovery site as soon as practicable, and perform minor hand-excavation to describe the archaeological resources present and assess the amount of disturbance. 3. The Consulting Archaeologist shall provide to the District and the Corps, at a minimum, written and digital-photographic documentation of all observed materials, utilizing the guidelines for evaluating archaeological resources for the California Register of Historic Places (CRHP) and National Register of Historic Places (NRHP). Based on the assessment, the District and Corps shall identify the CEQA and Section 106 cultural-resources compliance procedure to be implemented. 4. If the find appears to not meet the CRHP or NRHP criteria of significance, and the Corps archaeologist concurs with the Consulting Archaeologist's conclusions, construction shall continue while monitored by the Consulting Archaeologist. The authorized maintenance work shall resume at the discovery site only after the District has retained a Consulting Archaeologist to monitor and the Watershed Manager has received notification from the Corps to continue work. 5. If the find appears significant, avoidance of additional impacts is the preferred alternative. The Consulting Archaeologist shall determine if adverse impacts to the resources can be avoided. 6. When avoidance is not practical (e.g., maintenance activities cannot be deferred or they must be completed to satisfy the SMP objective), the District shall develop an Action Plan and submit it to the Corps within 48 hours of Consulting Archaeologist's evaluation of the discovery. The action Plan may be submitted via e-mail (rstradford@spd.usace.army.mil). The Action Plan is synonymous with a data-recovery plan. It shall be prepared in accordance with the current professional standards and State guidelines for reporting the results of the work, and shall describe the services of a Native American Consultant and a proposal for curation of cultural materials recovered from a non-grave context. 7. The recovery effort will be detailed in a report prepared by the archaeologist in accordance with current archaeological standards. Any non-grave artifacts will be placed with an appropriate repository. 8. In the event of discovery of human remains (or the find consists of bones suspected to be human), the field crew supervisor shall take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent.) 9. Immediately notify the Santa Clara County Coroner and provide any information that identify the remains as Native American. If the remains are determined to be from a prehistoric Native American, or determined to be a Native American from the ethnographic period, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours of being notified of the remains. The NAHC then designates and notifies within 24 hours a *Most Likely Descendant* (MLD). The MLD has 24 hours to consult and provide recommendations for the treatment or disposition, with proper dignity, of the human remains and grave goods. 10. Preservation in situ is the preferred option. Human remains shall be preserved in situ if continuation of the maintenance work, as

		determined by the Consulting Archaeologist and MLD, will not cause further damage to the remains. The remains and artifacts shall be documented and the find location carefully backfilled (with protective geo-fabric if desirable) and recorded in District project files. 11. Human remains or cultural items exposed during maintenance that cannot be protected from further damage shall be exhumed by the Consulting Archaeologist at the discretion of the MLD and reburied with the concurrence of the MLD in a place mutually agreed upon by all parties.
7.2	Review of Projects with Native Soil	A cultural resources specialist will conduct a review and evaluation of those sites that would involve disturbance / excavation of native soil previously undisturbed by contemporary human activities to determine their potential for affecting significant cultural resources. The evaluation of the potential to disturb cultural resources will be based on an initial review of archival information provided by the California Historical Resources System/Northwest Information Center (CHRIS/NWIC) in regard to the project area based on a 0.25 mile search radius. It is recommended that this initial archival review be completed by a professional archaeologist who will be able to view confidential site location data and literature to arrive at a preliminary sensitivity determination. If necessary, a further archival record search and literature review (including a review of the Sacred Lands Inventory of the Native American Heritage Commission); and a field inventory of the project area will be conducted to determine the presence/absence of surface cultural materials associated with either prehistoric or historic occupation. The results along with any mitigation and/or management recommendations would be presented in an appropriate report format and include any necessary maps, figures, and correspondence with interested parties. A summary table indicating appropriate management actions (e.g., monitoring during construction, presence/absence testing for subsurface resources; data recovery, etc.) will be developed for each project site reviewed. The management actions will be implemented on site to avoid significant effects to cultural resources.

Sediment Removal

SMP – SEDIMENT REMOVAL BMPS

1.2	Tidal Work Areas	For tidal areas, a downstream cofferdam shall be constructed to prevent the work area from being inundated by tidal flows. By isolating the work area from tidal flows, water quality impacts are minimized. Downstream flows continue through the work area and through pipes within the cofferdam. 1. Installation of coffer dams shall begin at low tide. 2. Waters discharged through tidal coffer dam bypass pipes shall not exceed 50 NTUs over the background levels of the tidal waters into which they are discharged. 3. Coffer dams in tidal areas may be made from earthen material. If earth is used, the downstream and upstream faces shall be covered by a protected covering (e.g., plastic or fabric) if needed to minimize erosion.
1.3	Dewater/ Bypass Water at Non-tidal Sites	When work in a flowing stream is unavoidable, the entire streamflow shall be diverted around the work area by a barrier. Construction of the barrier shall normally begin in the upstream area and continue in a downstream direction, and the flow shall be diverted only when construction of the diversion is completed. The water diversion plan shall allow stream flows to gravity flow around or through the work site using temporary culverts or stream flow is pumped around the work site using pumps and screened intake hoses. Coffer dam construction shall be adequate to prevent seepage into or from the work area. Coffer dams shall be constructed of river run gravel with a fines content that is less than 15%. Fines are defined as material that is able to pass through a #20 sieve. Coffer dams may also be constructed of sheet piles, inflatable dams, and sand bags. Coffer dams shall be installed both upstream and downstream not more than 100 feet from the extent of the work areas. In-channel berms that only deflect water to one side of the channel during sediment removal may be constructed of channel material. The enclosure and the supportive material shall be removed when the work is completed and the removal shall normally proceed from downstream in an upstream direction. Normal flows shall be restored to the affected stream immediately upon completion of work at that location. 1. All water shall be discharged in a non-erosive manner (e.g., gravel or vegetated bars, on hay bales, on plastic, on concrete, or in storm drains when equipped with filtering devices, etc.). 2. Sumps or basins may also be used to collect water, where appropriate (e.g., in channels with low flows). 3. Where feasible and appropriate, diversion structures shall be installed on concrete sections of the channels or constructed of materials specified above. Earth fill shall not be used for cofferdams in non-tidal areas. 4. In conjunction with diversion structures, pumps or gravity-fed pipe systems are used to de-water sites. 5. Depending on the channel configurations, sediment removal may occur where the flows are not bypassed around the work site; as long as during excavation activities, a berm of sediment is left between the work area and stream flows to minimize water quality impacts. 6. Diversions shall maintain ambient stream flows below the diversion, and waters discharged below the project site shall

		not be diminished or degraded by the diversion.
F&G 21	Work in live stream	No equipment shall be operated in live stream channels during sediment removal and bank protection projects. Minor maintenance activities may be conducted as described in BMP 1.1.
1.4	Avoid Erosion When Restoring Flows	All temporary diversion structures and the supportive material shall be removed when the work is completed, but no more than 48 hours after work is completed. The removal shall normally proceed from downstream in an upstream direction. Normal flows shall be restored to the affected stream immediately upon completion of work at that location. Flows shall be restored in a manner that minimizes erosion. 1. When diversion structures are removed, to the extent practicable, the ponded flows shall be directed into the low-flow channel within the work site to minimize downstream water quality impacts. 2. Flows shall gradually be restored to the channel to avoid a surge of water that would cause erosion or scouring. 3. Bypassed flows may be slowly reintroduced into the dewatered area by leaving a silt barrier in place to allow water to slow and drop sediment to the extent possible.
1.7	Pump/ Generator Set Operations and Maintenance	Pumps and generators shall be maintained and operated in a manner that minimizes impacts to water quality and aquatic species. 1. Pumps and generators shall be maintained according to manufacturers' specifications to regulate flows to prevent dryback or washout conditions. 2. Pumps shall be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high water conditions, which creates ponding. 3. Pump intakes shall be screened to prevent uptake of fish and other vertebrates.
1.8	Handle Sediments So As to Minimize Water Quality Impacts	Sediments shall be stored and transported in a manner that minimizes water quality impacts. 1. Wet sediments may be stockpiled outside of a live stream or may be stockpiled within a dewatered stream so water can drain or evaporate before removal. This measure applies to saturated, not damp, sediments and depends upon the availability of a stockpile site. 2. For those stockpiles located outside the channel, water draining from them shall not be allowed to flow back into the creek or into local storm drains that enter the creek, unless water quality protection measures recommended by the RWQCB are implemented. 3. Trucks may be lined with an impervious material (e.g., plastic), or the tail gate blocked with dry dirt or hay bales, for example, or trucks may drain excess water by slightly tilting their loads and allowing the water to drain out. 4. Water shall not drain directly into channels (outside of the work area) or onto city streets without providing water quality control measures. 5. Streets shall be cleaned of mud and/or dirt by street sweeping, as necessary, and not by hosing down the street.
RWQCB SF D.2	Temporary stockpiles	Excavated sediment may be stockpiled on-site so that it can be loaded into trucks for off-site disposal within 3 working days. The excavated

		sediment may also be temporarily stockpiled at an off-site location so that runoff, sediment, or decant water from the excavated material will not contact waters of the State without first being treated to meet receiving water limitations described in this Order
RWQCB CC C16 & Finding 52	Temporary stockpiles Uvas/Llagas Watershed	Excavated sediment shall be removed from temporary on-site storage within three days.
RWQCB SF D.5	Temporary sediment disposal site	A delineation of existing jurisdictional waters of the State and United States at any temporary sediment disposal site, verified according to U.S. Army Corps of Engineers delineation standards, shall be conducted prior to the construction of an impoundment at the site, and submitted for the Executive Officer's acceptance prior to the disposal of sediment at the site.
RWQCB SF D.6	Ultimate disposal of material	Ultimately dispose of dewatered dredged material at a permitted landfill, upland sediment disposal site, or at a reuse site in accordance with applicable state and federal regulations. (4/22/02 e-mail P. Amato to K. Slama: " *If the District intends to reuse sediment and there is a direct or potential impact to ground/surface water quality or beneficial uses, notification to the Regional Board is advised. This can be done via telephone, email, or writing at which time we will determine whether an approval is necessary."*
RWQCB CC Finding 53	Ultimate disposal of material Uvas/ Llagas Watershed	Excavated sediment is disposed to landfills, or sites approved in advance by the Executive Officer
RWQCB SF B	Water quality	Decant water and/or runoff water discharged at any off-site stockpile site to storm drains or water of the State shall not exceed the following limits of quality at any time: pH: 6.5-8.5, Settleable matter: 1.0 ml/l/hr; Dissolved sulfide: 0.1 mg/l
1.9	Soil Stockpiles	If soil is to be stockpiled, no run-off shall be allowed to flow back to creek.
1.12	Groundwater Management	If high levels of groundwater in a work area are encountered, the water is pumped out of the work site. If necessary to protect water quality, the water shall be directed into specifically constructed infiltration basins, into holding ponds, or onto areas with vegetation to remove sediment prior to the water re-entering a creek. Water pumped into vegetated areas shall be pumped in a manner that will not create erosion around vegetation.
1.13	Prevent Scour Downstream of Sediment Removal	Sites in the transport zone on alluvial fans may cause increased scour downstream if they experience rapid sediment accumulation after sediment removal. Channel reaches up to 500 feet downstream from such sediment removal sites shall be monitored to determine whether accelerated erosion is occurring. If downstream monitoring indicates that erosion is occurring, then remedial action such as rock vortex weirs or similar protection shall be carried out.
2.2	Minimize Stream Access Impacts	District personnel shall use existing access ramps and roads where possible. If temporary access points are necessary, they shall be constructed in a manner that minimizes impacts to streams: 1. Temporary project access points shall be created as close to the work area as possible to minimize running equipment down stream channels and shall be constructed so as to minimize adverse impacts, such as tree removal. 2. When temporary access is removed, remaining disturbed soil

		shall be stabilized and seeded immediately after construction. 3. Any temporary fill used for access shall be removed upon completion of the project. Channel topography and geometry shall be restored to pre-project conditions to the extent possible.
RWQCB SF C	Receiving Water Limitations	1. In implementing the SMP, the Discharger shall not cause a) The natural temperature of any waters providing cold or warm freshwater habitat to be increased by more than 5 degrees F above natural temperature unless a qualified biologist can demonstrate that such alteration does not adversely affect beneficial uses. b) Floating, suspended or deposited macroscopic particulate matter or foam in waters of the State more than 100 feet from point of discharge c) Alteration of apparent color beyond present natural background levels more than 100 feet from point of discharge d) Visible floating suspended or deposited oil or other petroleum products more than 100 feet from point of discharge. e) The following limits will not be exceeded at 100 feet downstream of the point of discharge of non-tidal sites and as described in Self Monitoring Program Water Quality Sampling Plan for tidal sites: i. DO: 5 mg/l min. for tidal and nontidal warm water habitats. 7 mg/l min for nontidal cold water habitats. When natural factors cause less concentration, then this discharge shall not cause further reduction in the concentration of dissolved oxygen. ii. pH: A variation of natural ambient pH by more than .5 pH units. iii. Toxic or other deleterious substances: None shall be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumptions either at levels created in the receiving waters or as a result of biological concentrations. 2. Turbidity 100 feet downstream of point of discharge at non-tidal sites, and at diverted water/work area outfall sampling locations shall not increase above background levels by more than the following <u>Receiving Water Background</u> — <u>Incremental Increase</u> <50 units — 5 NTUs > or = 50 units — 10% of background, maximum
RWQCB CC Limitations	Water Quality Uvas/Llagas Watershed Coloration	1. 1. Coloration attributed to stream maintenance activities shall not be greater than 15 units or 10 percent above background color, whichever is greater.
RWQCB CC Limitations	Water Quality Uvas/Llagas Watershed Turbidity Levels	9. a. Where natural turbidity is between 0 and 25 NTU, increases shall not exceed 5 NTU b. Where natural turbidity is between 25 and 50 NTU, increases shall not exceed 20% c. Where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU. d. Where natural turbidity is greater than 100 NTU, increases shall not

		exceed 10%.
RWQCB CC Limitations	Water Quality Uvas/Llagas Watershed pH	10. Surface water pH shall not increase or decrease by more than 0.5 pH units
RWQCB CC Limitations	Water Quality Uvas/Llagas Watershed Dissolved Oxygen (d.o.)	11. For Pajaro River, Llagas, Alamias, Live Oak, Carnadero, Uvas, Little Arthur and Bodfish Creeks a. where background d.o. is less than 7 mg/L, there shall be no reduction in d.o. b. where background d.o. is > than 7 mg/L, d.o. concentration shall not be reduced below 7 mg./L 12. For all other surface waters, a. Where background d.o. is less than 5 mg/L, there shall be no reduction in d.o. b. Where background d.o. is greater than 5 mg/l, d.o. concentration shall not be reduced below 5 mg/L
RWQCB CC Limitations	Water Quality Uvas/Llagas Watershed Temperature	13. For Pajaro River, Llagas, Alamias, Live Oak, Carnadero, Uvas, Little Arthur and Bodfish Creeks, maintenance activities will not alter the temperature by more than 5 degrees F above natural surface water temperature.
RWQCB CC MRP	Water Quality Uvas/Llagas Watershed Exceedance / Violations	1. Upon discovery of an exceedance, the Discharger shall identify the source of the exceedance, implement corrective action, and resample or make additional observations to determine whether or not the exceedance was corrected. After 4 hours, an exceedance will be considered a violation. 2. Notify the Regional Board (805-549-3147) to report violations of > 12 hour duration. Stop work for violations lasting greater than 24 hours. Update Regional Board staff of site conditions and obtain verbal permission to resume work. 3. Notify Regional Board staff in writing within 7 calendar days of all violations.
2.7	Seeding	For banks that are scraped during sediment removal, an erosion control seed mix shall be used. 1. A typical mix may consist of California native grasses (e.g., *Hordeum brachyantherum*, *Elymus glaucus* 'Berkeley,' *Bromus carinatus*) on slopes flatter than 3:1. *Vulpia microstachyes* may be added to the mix where slopes are steeper (e.g., 2:1). 2. Another seed mix may be of 'Escort' sterile wheat to provide a year's worth of protection. This mix is used only if further work is required the following year. 3. Temporary earthen access roads will be seeded when site and horticultural conditions are suitable.
F&G 30	Restoration, planting window	Restoration shall include the revegetation, seeding or mulching, of stripped or exposed areas. All planting shall be done between October 15 and March 15.
3.4	Mitten Crab Control Measures	Sediment from the San Francisco Bay Watershed, including that for reuse, will not be removed to areas any farther south than Metcalf Road in south San Jose. This measure is to avoid transporting mitten crabs, a highly invasive, exotic species, to areas where they are not currently found.
3.6	Remove Sediment from One Side of	Some channels are large in the sense that sediment removal operations must be conducted from both sides of the channel.

	Large Channels in Alternate Years	sediment removed from these channels will take one of two approaches: it will be from alternate sides in alternate years unless switching sides within a single year will result in equal or fewer impacts to vegetation and will provide for continuous fish passage by avoiding channel dewatering If vegetation impacts are equivalent between the two methods, switching sides is preferred where dewatering of the low flow channel can be avoided. As described herein, either method used will minimize vegetation removal and retain emergent vegetation, which is used for food, cover, fish spawning and nursery areas, and wildlife movement corridors. According to the Maintenance Guidelines, this measure applies to the following channel reaches (Station Nos.): 1. Stevens Ck. (0+00–146+00) 2. Calabazas Ck. (0+00–102+00) 3. San Tomas Creek (0+00-151+40) 4. Alamitos Ck. (42+65–218+00) 5. Guadalupe River (230+00–387+50) 6. Berryessa Ck. (0+00–200+00) 7. Lower Penitencia (0+00–40+00) 8. Silver Ck. (100+00–315+40) 9. Thompson Ck. (0+00–48+00)
3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	If fisheries or native aquatic vertebrates are present when cofferdams, water bypass structures, and silt barriers are to be installed, a fish and native aquatic vertebrate relocation plan shall be implemented to ensure that fish and native aquatic vertebrates are not stranded. Relocation efforts will be based on the District's Fish Relocation Guidelines. Streams that support a sensitive species (i.e. steelhead) will require a relocation effort and/ or initial onsite monitoring by a qualified biologist depending on seasonal conditions (BMP 3.1).: 1. In non-tidal channels, where water is to be diverted, prior to the start of work or during the installation of water diversion structures, native aquatic vertebrates shall be captured in the work area and transferred to another reach as determined by a qualified biologist. Timing of work in streams that supports a significant number of amphibians will be delayed until metamorphosis occurs to minimize impacts to the resource. Capture and relocation of aquatic native vertebrates is not required at individual project sites when site conditions preclude reasonably effective operation of capture gear and equipment. 2. Aquatic invertebrates will not be transferred (other than incidental catches) because of their anticipated abundance and colonization after completion of the repair work.
3.8	Minimize Effects of Bypass Structures on Steelhead	1. To prevent increases in temperature and decreases in dissolved oxygen (DO), if bypass pipes are used, they shall be properly sized (i.e., larger diameter pipes to better pass the flows). Bypass pipes may also be avoided by creating a low-flow channel or using other methods to isolate the work area. 2. In Non-tidal Areas, diversions on the Guadalupe River, Calero, Los Gatos, Guadalupe, Alamitos, Coyote, Upper Penitencia, Stevens, San Francisquito, Bodfish, Little Arthur, Uvas and Llagas Creeks shall maintain conditions required for fish passage. Diversions shall maintain fish passage when the project meets the following

		conditions: 1) the length of the area dewatered exceeds 500 feet, and/or 2) the length of time the stream is dewatered exceeds two weeks in length. Conditions for fish passage shall be met as long as the diversion 1) maintains contiguous flows through a low flow channel in the channel bed or an artificial open channel, 2) presents no vertical drops exceeding six (6) inches and follows the natural grade of the site, 3) maintains water velocities that shall not exceed eight feet per second (8 ft/sec), and 4) maintains adequate water depths consistent with normal conditions in the project reach. An artificial channel used for fish passage shall be lined with cobble/gravel. A closed conduit pipe shall not be used for fish passage. The inlets of diversions shall be checked daily to prevent accumulation of debris.
3.10	Conduct In-Channel Work During the Dry Season	Avoid and minimize impacts to salmonids by timing stream maintenance projects in streams where there are or could be salmonids so that the use of heavy equipment in the channel is conducted outside of the migration and spawning season. 1. Minor maintenance activities that occur above ordinary high water and do not impact the riparian corridor may be done at any time of the year. These activities include fence repair, graffiti removal, revegetation maintenance, rodent control, etc. 2. Minor activities will be done in channel if the activity is necessary to provide immediate flood protection. These activities include removal of trash or debris that will impede flows, trash rack cleaning, and pier nose cleaning. These activities will be done in a manner that is sensitive to protection of aquatic resources.
3.11	Avoid Dewatering an Entire Isolated Stream Reach	Construction sites may be isolated by upstream or downstream barriers, such as culverts. In reaches that contain deep pools, the District shall maintain these pools as refuges by constructing temporary fencing so as to avoid pool destruction when preservation of the pool is not in the construction footprint or a barrier to project access. This BMP does not apply to sediment removal activities that require the removal of all sediment to restore the design capacity.
3.12	Maintain Low-flow Fish Passage	If a nontidal stream channel has been altered during the operations, its low flow channel shall be returned as nearly as possible to its approximate prior location with appropriate depth for fish passage without creating a possible future bank erosion problem.
3.13	Remove Temporary Fills as Appropriate	Temporary fills, such as for access ramps, diversion structures, or cofferdams, shall be completely removed upon finishing the work.
F&G 23	Remove material from flow areas	Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.
3.15	Restore Pool Configuration of Channel Bottom	The District shall re-grade the channel bottom at the end of the work project to as close to original conditions as possible. 1. In areas used for migration by salmonids as designated on the District GIS Fisheries coverage, the depth and size of the low flow channel and pools shall emulate the pre-construction conditions as closely as possible, within the finished channel topography. 2. All material used to construct temporary fills shall be removed upon completion of the project.
3.16	Restore Spawning Gravels in Work	The District shall replace gravels at the end of construction in potential salmonid spawning reaches.

	Site Areas	1. Spawning gravels removed as a result of stream maintenance activities shall be replaced using a gravel/cobble mixture representing the size and relative abundance of gravel/cobbles present pre-project impact. 2. Spawning gravel replacement will be configured to maximize functional benefits including salmonid spawning, aquatic invertebrate production, and juvenile escape cover.
3.17	Reuse Sediments and Gravels As Appropriate	Where practical, the District will reuse removed sediments and gravels. Sediments that are considered for re-use will be tested for hazardous materials and graded for structure as necessary in order to determine their appropriateness for re-use and consistency with BMPs 1.3 and 3.16. When sediments or gravels are reused, the District will ensure that the reuse does not cause any additional erosion, siltation, or other negative environmental consequences. Reuse will be considered within the context of environmental, regulatory, and fiscal consequences.
4.3	Stabilized Construction Entrance	The District shall implement measures to minimize soil from being tracked onto streets near work sites: 1. Methods used to prevent mud from being tracked out of work sites onto roadways include installing a layer of geotextile mat, followed by a 4-inch thick layer of 1-3 inch diameter gravel on unsurfaced access roads. 2. Access shall be provided as close to the work area as possible, using existing ramps where available and planning work site access so as to minimize disturbance to the creek bed, creek banks, and the surrounding land uses.
5.1	Bay Area Quality Management District Basic Dust Control Measures	The District shall implement Bay Area Quality Management District Basic Control Measures at maintenance sites less than four acres in size. Current measures stipulated by the Bay Area Quality Management District CEQA Guidelines include the following: 1. Active maintenance areas shall be watered at least twice per day unless soils are already sufficiently moist to avoid dust. 2. Trucks hauling sediments and other loose material shall be covered or shall maintain at least two feet of freeboard. 3. Tailgates of trucks shall be sealed. 4. Trucks shall be brushed down before leaving the maintenance site. 5. Unpaved access roads and staging areas that are being used for the maintenance activity shall be watered three times daily, or non-toxic soil stabilizers shall be applied to control dust generation. 6. Paved maintenance site access roads shall be swept when visible soil material is carried onto the roadway.
5.2	Bay Area Quality Management District Enhanced Dust Control Measures	For single maintenance sites greater than four acres, the District shall implement Bay Area Quality Management District Enhanced Dust Control Measures. These measures include the following: 1. Inactive areas shall be sprayed with soil stabilizer or seeded. 2. Exposed stockpiles shall be watered, enclosed, covered, or sprayed with soil stabilizers. 3. Traffic speeds shall be limited to 15 mph. 4. Sandbags or other bank protections shall be installed to prevent

		silt runoff to roadways. 5. Vegetation in disturbed areas shall be replanted as soon as horticulturally appropriate. For example, plant material may not be ready as soon as the job is done (e.g. willow cuttings have to be collected during winter dormancy).
5.3	Avoid Stockpiling Potentially Odorous Sediments	Some of the sediment removal sites will have sediment that is rich in organic matter decaying in anaerobic conditions, which generates assorted malodorous gases, such as reduced sulfur compounds. These sediments shall be handled in a manner that avoids impacting sensitive receptors. 1. The District shall avoid stockpiling potentially odorous sediments within 1000 feet of residential areas or other odor sensitive land uses. 2. Where appropriate, odorous stockpiles shall be disposed of at an appropriate landfill.

Vegetation Management

SMP - VEGETATION MANAGEMENT BMPs

1.14	Minimize Sediment Transport Downstream from In-channel Herbicide Sites	Where sediment has accumulated due to vegetation in-channel, herbicide application may result in release of sediment downstream. Prior to herbicide application within active channels, the potential for significant sediment release shall be assessed. If the site has the potential for significant sediment release, then one of two techniques will be considered: 1. Where an area has not been routinely treated with herbicides, new herbicide applications shall be phased over several seasons, or 2. Remove the excess sediment through mechanical means after the vegetation is killed.
1.16	Minimize Local Erosion Increase from In-channel Vegetation Removal	In-channel vegetation removal may result in increased local erosion due to increased flow velocity. To minimize the effect, the toe of the bank shall be protected by leaving vegetation to the maximum extent possible consistent with the maintenance guidelines.
3.18	Herbicide Use in Aquatic Areas	Only herbicides and surfactants registered for aquatic use shall be applied within the banks of channels within 20 feet of any water present. Aquatic herbicide use shall be limited to July 1st through October 15th, except on Guadalupe River, where applications within 20 feet of the low flow channel are limited to July 1st to August 15th. If rain is forecast then application of aquatic herbicide shall be rescheduled. All aquatic herbicide use under this BMP shall also comply with NMFS D.2. relative to aquatic herbicide use on the 14 creeks designated as critical habitat for steelhead.
NMFS D.2.	Herbicide Use in Aquatic Areas	On the 14 creeks designated critical habitat for steel head (list at end of this document), 2a. No surfactants may be added to herbicides used in the above listed streams. Only unadulterated formulations approved for aquatic use by the manufacturer shall be used. Where the stream reach is completely dry, surfactants may be used between June 15 and October 15. 2b. Herbicides shall be applied with a dye that is non-toxic in the aquatic environment, so that staff can determine that the extent of application meets guidelines in the EPA bulletin *Protecting Endangered Species: Measures for Use of Pesticides in Santa Clara County (2000)* 2c. The presence and extent of indicator dyes shall be recorded and reported in the District's annual report. If the indicator dyes suggest quantities of herbicides in excess of that normally released during standard application procedures, NMFS Santa Rosa Area Office San Francisco Team Leader (707-575-6050) shall be contacted within 24 hours.
RWQCB CC Project Desc. 34	Herbicide Use in Uvas/Llagas Watershed	34. Channel vegetation management does not include herbicide application other than for giant reed control and control of invasive non-native plant species.

3.20	Minimize Adverse Effects of Herbicides on Non-target Species	Herbicides are a key component of vegetation management under the SMP. Herbicides shall be used in a manner that minimizes negative environmental effects by avoiding impacts to non-target species. Herbicide use shall be guided by label restrictions and any advisories published by the California Department of Pesticide Regulation (CDPR) or the County Agricultural Commission. The US EPA bulletin *Protecting Endangered Species, Interim Measures for Use of Pesticides in Santa Clara County* provides additional guidelines for herbicide use (US EPA 2000). 1. Herbicide use shall be reviewed annually prior to application using information from CDPR and US EPA maintained in the District GIS database to determine the potential presence of special-status species that could be adversely affected, and the target areas and chemicals used will be modified as necessary. 2. To avoid toxic effects to all life stages of California Red-legged Frogs (RLF), whenever herbicides are to be used in within 1.25 miles of known RLF locations, the District shall refer to both the product label for the material being used and the Endangered Species Database maintained by the California Department of Pesticide Regulation and use the lower of the two recommended rates if there is a difference.
3.22	Herbicide Use in Upland Areas	Application of pre emergence (residual) herbicides to upland areas shall not be made within 72 hours of predicted significant rainfall. Predicted significant rainfall for the purposes of this BMP shall be described as local rainfall greater than 0.5 inches in a 24 hour period with greater than a 50% probability of precipitation.
4.7	Herbicide Use Requirements	All herbicide use shall be consistent with approved product specifications. Applications shall be made by, or under the direct supervision of, State Certified applicators under the direction of a licensed Pest Control Advisor.
RWQCB-CC- April 15, 2004 Variance	Work Window Modification to WDR R2-2002-0028- Spec C.3	a. Mowing and hand clearing of upland weeds on channel banks between April 1st and June 30th.
4.8	***Late Season Giant Reed Control (Low Impact Activities)***	***In order to implement the Giant Reed Control Program, low impact activities associated with this work will be allowed until December 31st as site and weather conditions permit. Examples of low impact activities would be hand cutting of bio-mass, relocation of cut material to upslope sites for disposal, and topical herbicide application to vegetation not located in the water. All activities would have to conform to other Best Management Practices and permit conditions. Site specific BMP's to further protect resources may be required as conditions necessitate.***

SMP - BANK PROTECTION BMPs

1.3	Dewater/ Bypass Water at Non-tidal Sites	When work in flowing streams is unavoidable, the entire streamflow shall be diverted around the work area. Construction of a barrier shall normally begin in the upstream area and continue in a downstream direction, and the flow shall be diverted only when construction of the diversion is completed. The water diversion plan shall allow stream flows to gravity flow around or through the work site using temporary culverts. Stream flows can also be pumped around the work site using pumps and screened intake hoses. Coffer dam construction shall be adequate to prevent seepage into and out of the work area. Coffer dams shall be constructed of river run gravel with a fines content that is less than 15%. Fines are defined as material that is able to pass through a #20 sieve. Coffer dams may also be constructed of sheet piles, inflatable dams, and sand bags. Coffer dams shall be installed both upstream and downstream not more than 100 feet from the extent of the work areas. In-channel berms that only deflect water to one side of the channel during sediment removal may be constructed of channel material. The enclosure and the supportive material shall be removed when the work is completed. Removal shall normally proceed from downstream in an upstream direction. Normal flows shall be restored to the affected stream immediately upon completion of work at that location. 1. All water shall be discharged in a non-erosive manner (e.g., discharge onto gravel or vegetated bars, on hay bales, on plastic, on concrete, or in storm drains when equipped with filtering devices, etc.). 2. Sumps or basins may also be used to collect water, where appropriate (e.g., in channels with low flows). 3. Where feasible and appropriate, diversion structures shall be installed on concrete sections of the channels or constructed of materials specified above. Earth fill shall not be used for cofferdams in non-tidal areas. 4. In conjunction with diversion structures, pumps or gravity-fed pipe systems are used to de-water sites. 5. Depending on the channel configurations, sediment removal may occur where the flows are not bypassed around the work site; as long as during excavation activities, a berm of sediment is left between the work area and stream flows to minimize water quality impacts. Diversions shall maintain ambient stream flows below the diversion, and waters discharged below the project site shall not be diminished or degraded by the diversion.
F&G 21	Work in live stream	No equipment shall be operated in live stream channels during sediment removal and bank protection projects. Minor maintenance activities may be conducted as described in BMP 1.1.

RWQCB SF C	Receiving Water Limitations	1. In implementing the SMP, the Discharger shall not cause a. The natural temperature of any waters providing cold or warm freshwater habitat to be increased by more than 5 degrees F above natural temperature unless a qualified biologist can demonstrate that such alteration does not adversely affect beneficial uses. b. Floating, suspended or deposited macroscopic particulate matter or foam in waters of the State more than 100 feet from point of discharge c. Alteration of apparent color beyond present natural background levels more than 100 feet from point of discharge d. Visible floating suspended or deposited oil or other petroleum products more than 100 feet from point of discharge. e. The following limits will not be exceeded at 100 feet downstream of the point of discharge of non-tidal sites and as described in Self Monitoring Program Water Quality Sampling Plan for tidal sites: i. DO: 5 mg/l min. for tidal and nontidal warm water habitats. 7 mg/l min for nontidal cold water habitats. When natural factors cause less concentration, then this discharge shall not cause further reduction in the concentration of dissolved oxygen. ii. pH: A variation of natural ambient pH by more than .5 pH units. iii. Toxic or other deleterious substances: None shall be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumptions either at levels created in the receiving waters or as a result of biological concentrations. 2. Turbidity 100 feet downstream of point of discharge at non-tidal sites, and at diverted water/work area outfall sampling locations shall not increase above background levels by more than the following <u>Receiving Water Background</u> — <u>Incremental Increase</u> <50 units — 5 NTUs > or = 50 units — 10% of background, maximum
F&G 22	Turbidity	Stream turbidity adjacent to and immediately downstream of the non-tidal project sites shall not exceed 50NTU's above background levels, as measured immediately upstream of the project sites. (Note RWQCB requirements more stringent)
RWQCB CC Limitations	Water Quality Uvas/Llagas Watershed Coloration	1. Coloration attributed to stream maintenance activities shall not be greater than 15 units or 10 percent above background color, whichever is greater.
RWQCB CC Limitations	Water Quality Uvas/Llagas Watershed Turbidity Levels	9. a. Where natural turbidity is between 0 and 25 NTU, increases shall not exceed 5 NTU b. Where natural turbidity is between 25 and 50 NTU, increases shall not exceed 20% c. Where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU.

		d. Where natural turbidity is greater than 100 NTU, increases shall not exceed 10%.
RWQCB CC Limitations	Water Quality Uvas/Llagas Watershed pH	10. Surface water pH shall not increase or decrease by more than 0.5 pH units
RWQCB CC Limitations	Water Quality Uvas/Llagas Watershed Dissolved Oxygen (d.o.)	11. For Pajaro River, Llagas, Alamias, Live Oak, Carnadero, Uvas, Little Arthur and Bodfish Creeks a. where background d.o. is less than 7 mg/L, there shall be no reduction in d.o. b. Where background d.o. is > than 7 mg/L, d.o. concentration shall not be reduced below 7 mg./L 12. For all other surface waters, c. a. Where background d.o. is less than 5 mg/L, there shall be no reduction in d.o. d. b. Where background d.o. is greater than 5 mg/l, d.o. concentration shall not be reduced below 5 mg/L
RWQCB CC Limitations	Water Quality Uvas/Llagas Watershed Temperature	13. For Pajaro River, Llagas, Alamias, Live Oak, Carnadero, Uvas, Little Arthur and Bodfish Creeks, maintenance activities will not alter the temperature by more than 5 degrees F above natural surface water temperature.
RWQCB CC MRP	Water Quality Uvas/Llagas Watershed Exceedance / Violations	1. Upon discovery of an exceedance, the Discharger shall identify the source of the exceedance, implement corrective action, and resample or make additional observations to determine whether or not the exceedance was corrected. After 4 hours, an exceedance will be considered a violation. 2. Notify the Regional Board (805-549-3147) to report violations of > 12 hour duration. Stop work for violations lasting greater than 24 hours. Update Regional Board staff of site conditions and obtain verbal permission to resume work. 3. 3. Notify Regional Board staff in writing within 7 calendar days of all violations.
1.4	Avoid Erosion When Restoring Flows	All temporary diversion structures and the supportive material shall be removed when the work is completed, but no more than 48 hours after work is completed. The removal shall normally proceed from downstream in an upstream direction. Normal flows shall be restored to the affected stream immediately upon completion of work at that location. Flows shall be restored in a manner that minimizes erosion. 1. When diversion structures are removed, to the extent practicable, the ponded flows shall be directed into the low-flow channel within the work site to minimize downstream water quality impacts. 2. Flows shall gradually be restored to the channel to avoid a surge of water that would cause erosion or scouring. 3. Bypassed flows may be slowly reintroduced into the dewatered area by leaving a silt barrier in place to allow water to slow and drop sediment to the extent possible.
1.5	Erosion and Sediment Control Measures	Erosion control methods shall be used as appropriate during all phases of routine maintenance projects to control sediment and minimize water quality impacts. The District shall prevent erosion on steep slopes by using erosion control material according to

		manufacturer's specifications. All construction related erosion control methods shall be removed at the completion of the project. Appropriate measures include, but are not limited to, the following: 1. Silt Fences 2. Straw Bale Barriers 3. Brush or Rock Filters 4. Storm Drain Inlet Protection 5. Sediment Traps 6. Sediment Basins 7. Erosion Control Blankets and Mats 8. Soil Stabilization i.e. Tackified straw with seed, jute or geotextile blankets, etc. The following Bay Area Stormwater Management Agency Association BMPs provide guidance and specifications as to implementation of the erosion control measures described: SC-3. Sediment Basins SC-4. Straw or Sand Bag Barriers SC-5. Sediment Traps SC-6. Silt Fences SS-1. Erosion Control Blankets, Mats, and Geotextiles VR-1. Brush or Rock Filters VR-2. Check Dams VR-4b. Temporary Outlet Protection VR-4b. Storm Drain Inlet Protection WD-1. Earth Dike WD-1. Slope Drain WD-3. Temporary Drains and Swales
1.7	Pump/ Generator Set Operations and Maintenance	Pumps and generators shall be maintained and operated in a manner that minimizes impacts to water quality and aquatic species. 1. Pumps and generators shall be maintained according to manufacturers' specifications to regulate flows to prevent dryback or washout conditions. 2. Pumps shall be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high water conditions, which creates ponding. 3. Pump intakes shall be screened to prevent uptake of fish and other vertebrates.
1.10	Avoid Exposing Soils with High Mercury Levels	Bank Protection projects in portions of the Guadalupe River watershed affected by historical mercury mining may expose soils containing mercury which may affect stream water quality. 1. In the specified channel reaches in the Guadalupe River Basin, soils that are likely to be disturbed or excavated shall be tested for Mercury (Hg). Soils shall be remediated if: a. disturbed or excavated soils exposed to flood flows below the 2.33-year channel flow level exceed 1 ppm Hg, or b. disturbed or excavated soils above the 2.33-year flow level exceed 20 ppm Hg. 2. Remediation may be accomplished either by: a. treating the site so that contaminated soils excavated for the purpose of installing bank protection shall not be susceptible to erosion, or b. by further excavating contaminated soils and replacing

		them with clean fill or other bank protection materials that are free from contaminants. c. Soils with mercury concentrations exceeding 20 mg/kg shall be removed and disposed of in a Class I landfill following established work practices and hazard control measures. 3. To ensure worker safety is protected during bank protection projects with elevated mercury concentrations in the exposed surfaces, personal protective equipment will be required during project construction to maintain exposure below levels established by the Occupational Safety and health Agency (OSHA).
1.11	Concrete Use Near Waterways	Concrete that has not been cured is alkaline and can increase the pH of the water; fresh concrete shall be isolated until it no longer poses a threat to water quality using the following appropriate measures: 1. Wet sacked concrete shall be excluded from the wetted channel for a period of two weeks after installation. During that time, the wet sacked concrete shall be kept moist (such as covering with wet carpet) and runoff from the wet sacked concrete shall not be allowed to enter a live stream. 2. Poured concrete shall be excluded from the wetted channel for a period of two weeks after it is poured. During that time, the poured concrete shall be kept moist, and runoff from the wet concrete shall not be allowed to enter a live stream. Commercial sealants (e.g., Deep Seal, Elasto-Deck Reservoir Grade) may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If a sealant is used, water shall be excluded from the site until the sealant is dry. 3. Dry sacked concrete shall not be used in any channel. 4. An area outside of the channel and floodplain shall be designated to clean out concrete transit vehicles.
1.12	Groundwater Management	If high levels of groundwater in a work area are encountered, the water is pumped out of the work site. If necessary to protect water quality, the water shall be directed into specifically constructed infiltration basins, into holding ponds, or onto areas with vegetation to remove sediment prior to the water re-entering a creek. Water pumped into vegetated areas shall be pumped in a manner that will not create erosion around vegetation.
1.15	Prevent Erosion Downstream of Bank Protection Sites	Increased water velocity at bank protection sites may increase erosion downstream. Bank stabilization site design shall assess hydraulic effects immediately upstream and downstream of the work area. If the hardscape revetment would cause significant increase in erosion potential, downstream energy dissipation features such as pools or grade control structures shall be considered in the design. If the evaluation identifies possible downstream impacts, proactive protection of these areas shall be provided. Such measures include, but are not limited to, appropriately keyed-in coir logs, riparian enhancement planting, strategic placement of rock, and flow deflectors.

2.2	Minimize Stream Access Impacts	District personnel shall use existing access ramps and roads where possible. If temporary access points are necessary, they shall be constructed in a manner that minimizes impacts to streams: 1. Temporary project access points shall be created as close to the work area as possible to minimize running equipment down stream channels and shall be constructed so as to minimize adverse impacts, such as tree removal. 2. When temporary access is removed, remaining disturbed soil shall be stabilized and seeded immediately after construction. 3. Any temporary fill used for access shall be removed upon completion of the project. Channel topography and geometry shall be restored to pre-project conditions to the extent possible.
F&G 30	Restoration, planting window	Restoration shall include the Revegetation, seeding or mulching, of stripped or exposed areas. All planting shall be done between October 15 and March 15.
2.3	Minimize Hardscape in Bank Protection Design	The District shall select bank repair techniques appropriate to a given site based on hydraulic and other site conditions. Refer to SMP Appendix E. Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities. 1. Biotechnical repair methods include live construction, willow wattling, erosion control blankets, brush matting, and installation of root wads and boulders in banks. 2. The repair shall be designed and installed so that it will be self-sustaining and use vegetation that adds structural integrity to the stream bank.
F&G 37 NOT A FIELD BMP		No more than 50% of bank repairs in any given year shall use "hard" or impervious structure designs.
RWQCB CC	Repair of existing bank protection	Pg. 5, footnote 7: "Existing-structure repair" involving bank protection structures will be regulated as bank protection projects, not as minor activities. However, Regional Board staff may consider bank protection repair/replacement projects for mitigation credits, depending on previous/existing and final structure design.
2.4 F&G 31.b.	Success Criteria for Bank Protection Plantings	Monitoring shall be conducted annually for a minimum period of five (5) years or until success criteria for planting are met a minimum of two years after irrigation has been removed at the planting densities stated in the FEIR (See FEIR, Appendix E, page X-2)]. Revegetation will be judged successful and meeting full compliance if it meets these criteria: 1. 70% of the original number of plants installed are alive and healthy at the end of 5 years or 2. If a site meets either of these requirements it will be judged as successful and monitoring will cease. 3. At the end of five years, 50% of the original number of plants installed are alive and healthy AND the site has 50% absolute cover of native vegetation 4. There will be no requirement for species diversity on bank protection projects. A variety of species replicating the natural plant community will be installed but ratios may adjust due to site conditions. A site will not be penalized due to a change in ratios or individual species dropping out. 5. Plants will be installed per the Protocol for Revegetation of Bank Protection Projects. Trees will have an average spacing of 10-12 feet and shrubs an average spacing of 6-8 feet.

		6. New plantings may be installed at any time during the 5-year period. No approvals will be required for additional planting or design changes such as species selection, container size, etc. 7. Pole plantings done at the toe of the bank or in rock will be exempt from these criteria in regard to spacing and survival. Pole plantings will be installed wherever possible but, due to the highly variable success rate related to soil and water conditions, these plantings should not be evaluated in the same manner. The success of pole planting efforts will be included in annual reports but this particular planting element will not be factored into the quantitative success criteria. 8. A site that has extraordinary constraints may have a separate revegetation design submitted for approval at the time of the design review. Upon regulatory approval, the success criteria associated with individual designs shall supercede these general criteria.
2.5	Planting	Planting for erosion control and habitat restoration shall be in accordance with District revegetation guidelines with the following exception: a. Dry-Water shall not be used as a method of irrigation.
F&G 32	Planting material	Revegetation and replacement plantings shall consist of locally collected native species. Collection of plant material for Revegetation shall be done in a manner consistent with BMP (3.2)
F&G 33	Reference sites for plant material	Plant selection shall be developed based on surveys of natural areas on the same creek that have a similar ecological setting. These "reference sites" will provide information as to what species would be found in the area and an approximate population density.
F&G 40	Planting window	Bank stabilization mitigation shall occur within the appropriate planting season immediately following the year of impact.
2.6	Mulching	Bark and other wood products shall be used as needed to prevent erosion of bare soil after construction is completed. 1. All newly planted and/or bare soil (excluding bare channel bottoms) in maintenance areas shall have a minimum 3" thick layer of bark or mulch installed except when the area is seeded. In that case, the thickness of the mulch layer shall not exceed ½ inch. 2. This bark or mulch can be ground-up woody products and/or leaves from either native material or from soil suppliers. 3. No non-native material that has allelopathic compounds (*Eucalyptus* spp.) or weed seeds shall be used as mulch in areas where it has the potential to inhibit native revegetation. Such areas would include flood plains and revegetation sites. 4. Any material imported from outside the District that is to be used as mulch shall be certified as weed-free.
2.8	Replace Trees	The District shall replace trees as follows: 1. Native trees that are lost to bank protection impacts shall be replaced at a 3:1 ratio and non-native trees that are lost shall be replaced at a 2:1 ratio. 2. Trees removed for installation of bank protection measures shall be replaced at the site, if feasible, or at the mitigation site created for that bank protection activity. 3. The Plant Selection Criteria, Planting Techniques, Maintenance, and Monitoring/Reporting protocols prescribed by the "Protocol for Revegetation Associated with Bank Protection" (Appendix E

		of SMP) shall be implemented, as applicable to tree replacement. 4. Replacement of heritage-sized trees (greater than 18 inches dbh) will be consistent with local ordinances.
2.9	Site Maintenance for Bank Protection Plantings	Follow-up maintenance shall be performed on sites that have been seeded and planted. 1. Maintenance shall include replacing dead or dying plants where appropriate, weeding, removing non-native plant colonizers, and ensuring that all plants receive sufficient water. 2. Irrigation shall be implemented as needed throughout the establishment period.
3.5	Minimize Loss of Aquatic Habitat from Bank Protection Work	Follow SMP Appendix E. Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities.
3.7	Salvage Native Aquatic Vertebrates from Dewatered Channels	If fisheries or native aquatic vertebrates are present when cofferdams, water bypass structures, and silt barriers are to be installed, a fish and native aquatic vertebrate relocation plan shall be implemented to ensure that fish and native aquatic vertebrates are not stranded. Relocation efforts will be based on the District's Fish Relocation Guidelines. Streams that support a sensitive species (i.e. steelhead) will require a relocation effort and/ or initial onsite monitoring by a qualified biologist depending on seasonal conditions (BMP 3.1).: 1. In non-tidal channels, where water is to be diverted, prior to the start of work or during the installation of water diversion structures, native aquatic vertebrates shall be captured in the work area and transferred to another reach as determined by a qualified biologist. Timing of work in streams that supports a significant number of amphibians will be delayed until metamorphosis occurs to minimize impacts to the resource. Capture and relocation of aquatic native vertebrates is not required at individual project sites when site conditions preclude reasonably effective operation of capture gear and equipment. 2. Aquatic invertebrates will not be transferred (other than incidental catches) because of their anticipated abundance and colonization after completion of the repair work.
3.8	Minimize Effects of Bypass Structures on Steelhead	1. To prevent increases in temperature and decreases in dissolved oxygen (DO), if bypass pipes are used, they shall be properly sized (i.e., larger diameter pipes to better pass the flows). Bypass pipes may also be avoided by creating a low-flow channel or using other methods to isolate the work area. 2. In Non-tidal Areas, diversions on the Guadalupe River, Calero, Los Gatos, Guadalupe, Alamitos, Coyote, Upper Penitencia, Stevens, San Francisquito, Bodfish, Little Arthur, Uvas and Llagas Creeks shall maintain conditions required for fish passage. Diversions shall maintain fish passage when the project meets the following conditions: 1) the length of the area dewatered exceeds 500 feet, and/or

		2) the length of time the stream is dewatered exceeds two weeks in length. Conditions for fish passage shall be met as long as the diversion 1) maintains contiguous flows through a low flow channel in the channel bed or an artificial open channel, 2) presents no vertical drops exceeding six (6) inches and follows the natural grade of the site, 3) maintains water velocities that shall not exceed eight feet per second (8 ft/sec), and 4) maintains adequate water depths consistent with normal conditions in the project reach. An artificial channel used for fish passage shall be lined with cobble/gravel. A closed conduit pipe shall not be used for fish passage. The inlets of diversions shall be checked daily to prevent accumulation of debris.
3.9	Retain Woody Materials and Vegetation	Woody material (including live leaning trees, dead trees, tree trunks, large limbs, and stumps) will be retained unless it is threatening a structure or impedes reasonable access. 1. Retain and flag stumps, snags, and branches in channels that can create fish habitat. 2. Ensure that this woody debris does not impede water flow and does not contribute to erosion. 3. When woody material is removed, priority will be given to reuse of the materials in bank protection projects. Species that contain potential allelopathic compounds such as Eucalyptus and Black Walnut will be allowed to season for a period of not less than six months or until wood is fully dried before being used as bank stabilization material. 3. 4. When retention will not compromise flood management system reliability, woody vegetation shall be left in place. On the 14 creeks designated critical habitat for steel head (list at end of this document)
NMFS BO 3.b.	Mitigate for woody debris	Large woody debris (greater than 30 centimeters in diameter and 1 meter in length) removed from the channels shall be replaced at a minimum 1:1 ratio at appropriate sites within the same watershed. Appropriate sites include areas where existing habitat complexity is low and would be enhanced by the provision of complex woody debris, where habitat restoration is ongoing, and at project sites where woody debris could be incorporated as part of the structure designed.
3.10	Conduct In-Channel Work During the Dry Season	Avoid and minimize impacts to salmonids by timing stream maintenance projects in streams where there are or could be salmonids so that the use of heavy equipment in the channel is conducted outside of the migration and spawning season. 1. Minor maintenance activities that occur above ordinary high water and do not impact the riparian corridor may be done at any time of the year. These activities include fence repair, graffiti removal, revegetation maintenance, rodent control, etc. 2. Minor activities will be done in channel if the activity is necessary to provide immediate flood protection. These activities include removal of trash or debris that will impede flows, trash rack cleaning, and pier nose cleaning. These

		activities will be done in a manner that is sensitive to protection of aquatic resources.
3.11	Avoid De-watering an Entire Isolated Stream Reach	Construction sites may be isolated by upstream or downstream barriers, such as culverts. In reaches that contain deep pools, the District shall maintain these pools as refuges by constructing temporary fencing so as to avoid pool destruction when preservation of the pool is not in the construction footprint or a barrier to protject access. THE PREVIOUS SENTENCE DOES NOT MAKE SENSE. PLEASE FIX. This BMP does not apply to sediment removal activities that require the removal of all sediment to restore the design capacity.
3.12	Maintain Low-flow Fish Passage	If a nontidal stream channel has been altered during the operations, its low flow channel shall be returned as nearly as possible to its approximate prior location with appropriate depth for fish passage without creating a possible future bank erosion problem.
3.13	Remove Temporary Fills as Appropriate	Temporary fills, such as for access ramps, diversion structures, or cofferdams, shall be removed upon finishing the work.
3.14	Maintain or Provide Escape Cover	Stable undercut banks (generally those maintained by roots or boulders) shall remain in place. Larger boulders (≥2-foot diameter) with minimum 4-12" gaps used for rip-rap may provide cavities as escape cover that are not provided by sacked concrete, small rip-rap, or larger rip-rap with small rock in-fill.
3.15	Restore Pool Configuration of Channel Bottom	District shall re-grade the channel bottom at the end of the work project to The as close to original conditions as possible. 1. In areas used for migration by salmonids as designated on the District GIS Fisheries coverage, the depth and size of the low flow channel and pools shall emulate the pre-construction conditions as closely as possible, within the finished channel topography. 2. All material used to construct temporary fills shall be removed upon completion of the project. THIS IS BMP 3.13. CAN WE DELETE THIS SENTENCE?
3.16	Restore Spawning Gravels in Work Site Areas	The District shall replace gravels at the end of construction in potential salmonid spawning reaches. 1. Spawning gravels removed as a result of stream maintenance activities shall be replaced using a gravel/cobble mixture representing the size and relative abundance of gravel/cobbles present pre-project impact. 2. Spawning gravel replacement will be configured to maximize functional benefits including salmonid spawning, aquatic invertebrate production, and juvenile escape cover.
4.3	Stabilized Construction Entrance	The District shall implement measures to minimize soil from being tracked onto streets near work sites: 1. Methods used to prevent mud from being tracked out of work sites onto roadways include installing a layer of geotextile mat, followed by a 4-inch thick layer of 1-3 inch diameter gravel on unsurfaced access roads. 2. Access shall be provided as close to the work area as possible, using existing ramps where available and planning work site access so as to minimize disturbance to the creek bed, creek banks, and the surrounding land uses.

5.1	Bay Area Quality Management District Basic Dust Control Measures	The District shall implement Bay Area Quality Management District Basic Control Measures at maintenance sites less than four acres in size. Current measures stipulated by the Bay Area Quality Management District CEQA Guidelines include the following: 1. Active maintenance areas shall be watered at least twice per day unless soils are already sufficiently moist to avoid dust. 2. Trucks hauling sediments and other loose material shall be covered or shall maintain at least two feet of freeboard. 3. Tailgates of trucks shall be sealed. 4. Trucks shall be brushed down before leaving the maintenance site. 5. Unpaved access roads and staging areas that are being used for the maintenance activity shall be watered three times daily, or non-toxic soil stabilizers shall be applied to control dust generation. 6. Paved maintenance site access roads shall be swept when visible soil material is carried onto the roadway.
5.2	Bay Area Quality Management District Enhanced Dust Control Measures	For single maintenance sites greater than four acres, the District shall implement Bay Area Quality Management District Enhanced Dust Control Measures. These measures include the following: 1. Inactive areas shall be sprayed with soil stabilizer or seeded. 2. Exposed stockpiles shall be watered, enclosed, covered, or sprayed with soil stabilizers. 3. Traffic speeds shall be limited to 15 mph. 4. Sandbags or other bank protections shall be installed to prevent silt runoff to roadways. 5. Vegetation in disturbed areas shall be replanted as soon as horticulturally appropriate. For example, plant material may not be ready as soon as the job is done (e.g. willow cuttings have to be collected during winter dormancy).

SMP - MINOR MAINTENANCE BMPs

RWQCB - SF	Impacts	21. (pg 14) Minor activities shall not result in direct or cumulative significant impacts to water quality or beneficial uses of waters of the State.
RWQCB – CC	Existing Structure Repair	Pg. 5, footnote 7: Bank protection repair will be regulated as bank protection and not as minor maintenance.
F&G 21	Work in live stream	No equipment shall be operated in live stream channels during sediment removal and bank protection projects. Minor maintenance activities may be conducted as described in BMP 1.1.
F&G 30	Restoration, planting window	Restoration shall include the revegetation, seeding or mulching, of stripped or exposed areas. All planting shall be done between October 15 and March 15.
1.1	Conduct Work During Low Flow Periods	For minor work activities that will occur in the channel, work shall be conducted from the top of the bank if access is available and there are flows in the channel.
1.7	Pump/ Generator Set Operations and Maintenance	Pumps and generators shall be maintained and operated in a manner that minimizes impacts to water quality and aquatic species. 1. Pumps and generators shall be maintained according to manufacturers' specifications to regulate flows to prevent dryback or washout conditions. 2. Pumps shall be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high water conditions, which creates ponding. 3. Pump intakes shall be screened to prevent uptake of fish and other vertebrates.
3.9	Retain Woody Materials and Vegetation	Woody material (including live leaning trees, dead trees, tree trunks, large limbs, and stumps) will be retained unless it is threatening a structure or impedes reasonable access. 1. Retain and flag stumps, snags, and branches in channels that can create fish habitat. 2. Ensure that this woody debris does not impede water flow and does not contribute to erosion. 3. When woody material is removed, priority will be given to reuse of the materials in bank protection projects. Species that contain potential allelopathic compounds such as Eucalyptus and Black Walnut will be allowed to season for a period of not less than six months or until wood is fully dried before being used as bank stabilization material. 4. When retention will not compromise flood management system reliability, woody vegetation shall be left in place. On the 14 creeks designated critical habitat for steel head (list at end of this document),
NMFS D 3.b.	Mitigate for woody debris	Large woody debris (greater than 30 centimeters in diameter and 1 meter in length) removed from the channels shall be replaced at a minimum 1:1 ratio at appropriate sites within the same watershed. Appropriate sites include areas where existing habitat complexity is low and would be enhanced by the provision of complex woody debris, where habitat restoration is ongoing, and at project sites where woody debris could be incorporated as part of the structure designed

3.21	Minimize Rodenticide Impacts on Non-target Species	Burrowing rodents are controlled to minimize damage to levees on streams and canals. Rodent control areas shall be reviewed for the potential presence of special-status species and the rodent control methods tailored to minimize non-target species impacts. When chemical control is necessary, the use shall be guided by label restrictions and any advisories published by the California Department of Pesticide Regulation (CDPR) or the County Agricultural Commission. The EPA bulletin *Protecting Endangered Species, Interim Measures for Use of Pesticides in Santa Clara County* provides additional guidelines for rodenticide use (USEPA 2000). 1. Within the potential range of salt marsh harvest mouse (SMHM) (as designated on the District's GIS), lethal rodent control methods shall not be used. The District defines potential SMHM habitat as all areas north of Highway 237 as shown in Figure IV B11, and will refine this definition as surveys are conducted to eliminate areas that are separated by barren ground by at least 30 yards from any halophytic vegetation. 2. Prior to rodent control measures being employed, a qualified biologist shall conduct protocol surveys to determine the presence of Burrowing Owls. a. The location of Burrowing Owls shall be identified on the District's GIS system. b. A ½ mile buffer zone around burrowing owl locations shall be established. c. If necessary alternative methods of rodent control shall be determined by a qualified biologist. 3. The rodenticide applicator shall remove carcasses of poisoned animals, when they are found, to minimize secondary toxic effects on Raptors or other wildlife. Carcass survey and disposal shall be performed in the treated area beginning on the sixth day following the initial exposure of toxic baits. Any exposed carcasses shall be disposed of in a manner inaccessible to wildlife. Carcass surveys shall continue for at least a period of 5 days after the start of the surveys and thereafter, at least once a week, until no more carcasses are found. Any dead Raptors or other non-target wildlife found in the treated area during the carcass surveys shall be turned over to CDFG's pesticide lab for analysis.
F&G 23	Remove material from flow areas	Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.
NFMS D4a	Stream crossing repair or replacement	On the 14 creeks designated critical habitat for steel head (list at end of this document), Plans and specs for proposed stream crossing repair or replacement shall be submitted to NMFS 60 days in advance of the proposed project initiation date to ensure design is consistent with NMFS' *Guidelines for Salmonid Passage at Stream Crossing (May 2000).*

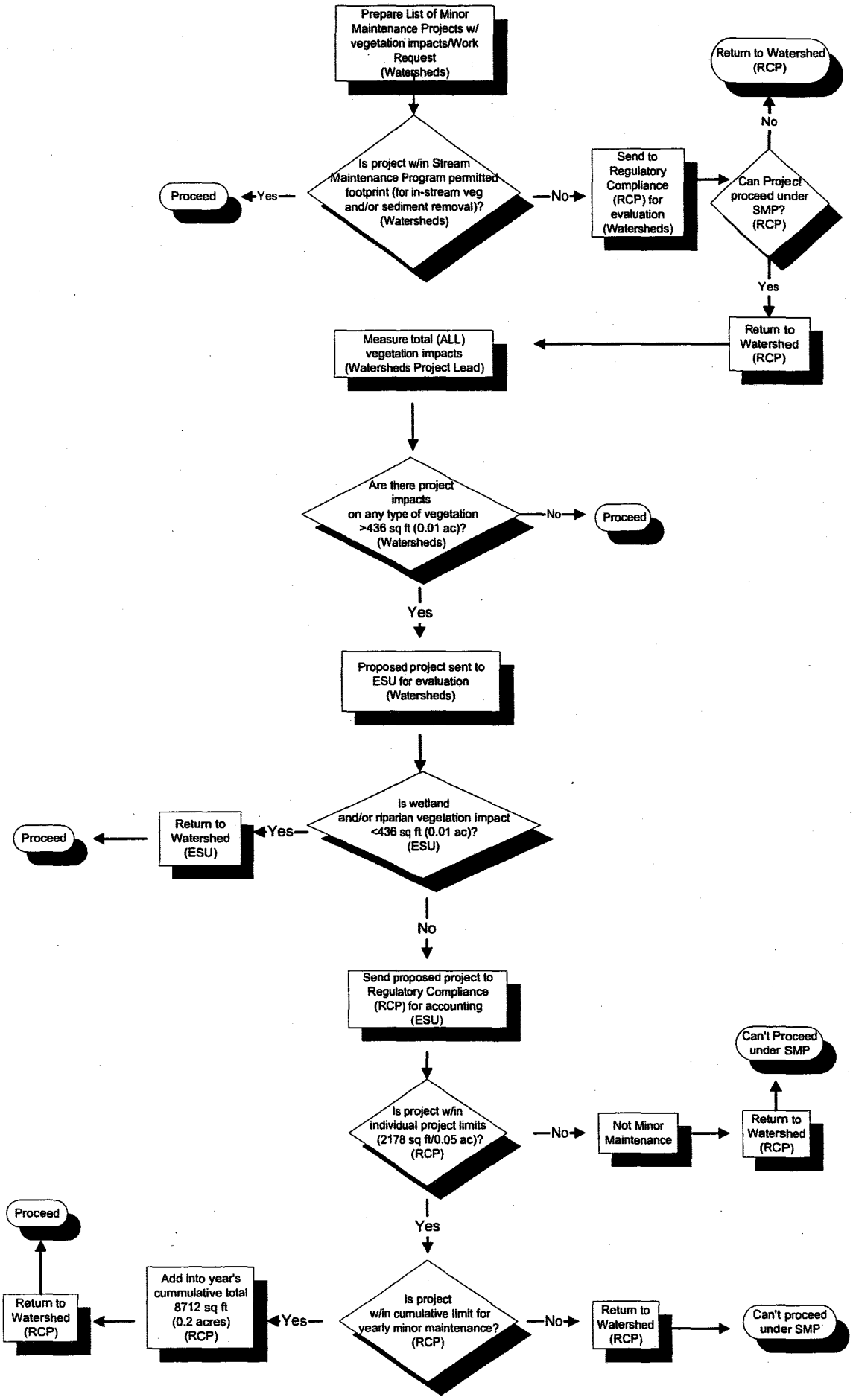
7.3	Minor Sediment Removal	Individual minor maintenance projects involving sediment removal at stream gauges, outfalls, culverts, flap gates, tide gates, grade control structures, bridges, fish ladders, and fish screens shall be limited to no more than 0.05 acres of wetland and/or riparian vegetation impact. Sediment removed from individual minor projects in excess of 500 cubic yards shall be characterized in accordance with the District's December 2001 Sediment Characterization Plan for the Multi-year Stream Maintenance Program (SMP). These projects shall be reported in the January 15th post construction report. Sediment removed will not be reused without pre-approval from appropriate regulatory agencies.

NMFS creeks designated critical habitat for steelhead (NMFS BO- C. Critical Habitat in the Action Area, pg. 17):

Guadalupe River
Los Gatos
Alamitos
Upper Pen
San Francisquito
Bodfish
Uvas
Calero
Guadalupe Cr
Coyote
Stevens
Pajaro
Little Arthur
Llagas

Miscellaneous

Minor Maintenance Accounting Procedure



Techniques for Tree Pruning and Equipment Access In Forested or Riparian Areas

Techniques to aid in the minimization of impacts to Native Trees and Large Woody Native Shrubs

1. Pruning techniques: limbs should be pruned so that the cut is made just outside the branch bark ridge (top of cut) and the collar (bottom of cut). This describes the area where the branch meets the trunk. Do not cut flush to the trunk. Avoid cutting large limbs from trees since large cuts promote disease & insect attack which can eventually cause the demise of the entire tree.

   Note that clearance of 'overhanging growth' for equipment access through trees should be done using these same pruning techniques. Unless unavoidable, do not 'hedge' trees or make stub cuts.
   http://www.treesaregood.com/treecare/pruning_mature.asp

2. Removal techniques, if temporary removal is unavoidable: In order to encourage the re-sprouting of cut stumps, native trees & large, woody native shrubs shall be cut above grade when feasible (~ 12 inches is recommended). Whenever possible, equipment accessing site shall navigate around the stumps to ensure that further damage does not occur.

3. Minimize soil & root damage: Reduce soil compaction and fracturing of tree roots by making every feasible effort to exclude vehicles & equipment & material storage from areas where plants are to grow. Typical methods of soil/root protection along equipment routes have been proven only partially effective [steel plates; 6 inches of pea or stream gravel or bark mulch; or plywood sheets]. Though soil de-compaction efforts can never fully counteract loss of soil structure and may cause further damage to existing roots, they can be attempted with care.
   http://www.treesaregood.com/treecare/avoiding_construction.asp
   http://www.treesaregood.com/treecare/treatment_construction.asp

4. Multi-trunk pruning: Removal of a tree with multiple trunks requires mitigation even if the dbh of each single trunk is less than 6 inches.